

TIME

Gene editing.
Uterus transplants.
Three biological parents.

The Future of Babies

A SPECIAL REPORT

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baby born in the U.S.
to a mother with a
transplanted uterus*





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A gas flare in May 2018 burns off excess gas in Midland, Texas, part of the Permian Basin, where an oil boom has remade the landscape

*Photograph by
Benjamin Lowy—
Getty Images*

ON THE COVER:
*Photograph
by Brent
Humphreys
for TIME*

WHAT YOU SAID ABOUT...

TIME'S 2018 Person of the Year selection of "The Guardians and the War on Truth"—representing journalists who pursue truth despite threats to their freedom and even their lives—drew a strong reaction from readers even before it was announced. Hundreds had written to urge TIME to choose slain Washington Post contributor Jamal Khashoggi; his inclusion made him the first individual ever to be posthumously named Person of the Year. The free flow of information remains under threat. Within a week of TIME's announcement, Reporters Without Borders announced that the U.S., for the first time in 23 years, had made the nonprofit's annual list of the deadliest places to practice journalism. Diane M. Foley—mother of murdered American journalist James W. Foley and president of a foundation in his name that advocates for the safe return of hostages—hopes TIME's choice helps raise awareness of the issue, and of those journalists "who have laid down their lives to keep us free." Here's a sampling of the response so far:

'Unflinching in the face of violence and harassment. Committed to freedom and truth. This is more than a magazine cover. It's a beacon.'

ROBERT COSTA, Washington Post political reporter



'Kudos to TIME ... Despotism is the enemy of the people. The free press is the despot's enemy, which makes the free press the guardian of democracy.'

JEFF FLAKE, Arizona Senator

"Thanks for an excellent choice that reminds us of the immense sacrifices of journalists who protect us sometimes in subtle ways."

VIRGINIA H. SONGSTAD, Columbus, Ohio

"I hope that young people considering a career in journalism will be inspired to become our future guardians at every level—local, county, state, national and international."


PAUL FEINER, Greenburgh, N.Y.

'Bravo, @time. #WeAreAllKhashoggi'

CHRISTIANE AMANPOUR, chief international anchor at CNN

'Journalism—solid, thoughtful, deep, brave, urgent, empathetic—is more essential than ever. Do we meet all criteria all the time? Certainly not. Do we need to aim there, and higher? Absolutely.'

HOWARD FINEMAN, NBC/MSNBC news analyst

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Katowice Rulebook: the Historic Success of Climate Policy at COP24

The global UN climate conference COP24, which took place on the first two weeks of December 2018 in Katowice, ended successfully. Negotiators from 196 countries and the European Union worked for two weeks on the Katowice Rulebook, implementing the Paris Agreement. In the capital of Upper Silesia, the most industrialised region of Poland, numerous heads of state, heads of government and nearly 100 ministers of the environment and foreign affairs from around the world were present at COP24. Thanks to the consensus of the Parties, Katowice, after Kyoto and Paris, has become yet another milestone on the road towards a sustainable global climate policy. Twelve days of intense work have resulted in the completion of specific areas of the implementation rules of the Paris Agreement. During this time, a wide range of issues were discussed - some fundamental, others very detailed and technical – which gave birth to a complex and difficult document. Finance, transparency and adaptation are some of its aspects. In the Katowice Rulebook, the interests of all Parties were taken into account in a well-balanced, fair way. Thanks to it, a great step will be taken towards realising the ambitions expressed in the Paris Agreement. Ambitions that will make our children look back on our legacy and recognise that their parents made the right decisions at an important, historical moment.

Stopping climate change requires cooperation and joint coordinated action by all Parties to the Convention. Therefore, the goal of Poland as the presidency of the summit was to maintain the global character of the Katowice Rulebook and to shape a joint global climate policy, taking into account the possibilities and specific conditions of individual countries. The Paris Agreement has presented a vision of striving to balance the human-induced emissions of greenhouse gases. The realisation of this vision is to be achieved thanks to the sovereignly defined so-called national contributions - NDC, taking into account the national economic, social, and environmental conditions of individual countries, as well as their development goals. The policies planned and implemented in this way will not only foster climate protection, they will also take into

account the specificity of national economy and the developmental stage of each of the Parties to the agreement. Thanks to the implementation of the Katowice Rulebook, these efforts will be tailored to the capabilities of individual countries and will ensure a balance of obligations between states. The methods of reporting, common measures and a system containing data on emissions reduction were also adopted. In this way, the world has obtained at the global level all the necessary tools for the operationalisation of climate policy implemented by individual states.

Another important element of the Katowice Rulebook is to determine the shape of the Global Stocktake, which is expected to occur in 2023. The Global Stocktake of Climate Policy is to form the basis for the preparation of reduction plans after 2030. The main provisions of the Rulebook are complemented by the establishment of a Committee analysing and assessing the implementation of emission reduction targets by individual countries. The Committee may discipline - though not punish - states that do not fulfil their obligations, not only in the area of reduction, but also reporting systems or the possible inactivity of the Parties in the Global Stocktake.

The success achieved in Katowice shows that Poland is an effective ambassador of a sustainable approach to counteracting climate change. We have ambitions to shape principles in a spirit of solidarity and multilateralism, taking into account the sovereign determination of national commitments as a cornerstone of the effectiveness of global efforts. Our joint activities were not only about the production of texts or defending national interests. In creating the Katowice Rulebook, we were conscious of our responsibility to people and commitment for the fate of Earth, which is our home and the home of future generations who will come after us. Under these circumstances, each step forward was a great achievement. And I thank you, the entire international community, for that. We can be proud of ourselves.

Michał Kurtyka, COP24 President

4 billion

Approximate number of miles between Earth and Ultima Thule, the farthest object ever explored by spacecraft; NASA's New Horizons probe flew by it at 12:33 a.m. New Year's Day

'We're in a pause situation.'

LINDSEY GRAHAM, U.S. Senator (R., S.C.), telling reporters that the withdrawal of some 2,000 U.S. troops from Syria, which President Trump ordered on Dec. 19, will be a gradual process



112

Age of Richard Overton of Austin, believed to have been the oldest American veteran of World War II, when he died Dec. 27

'THE PRESIDENT HAS NOT RISEN TO THE MANTLE OF THE OFFICE.'

MITT ROMNEY, 2012 Republican presidential nominee and the new U.S. Senator from Utah, denouncing Trump's overall "conduct" in the first two years of his presidency, in a Jan. 1 Washington Post op-ed

'Military people don't walk away.'

JOHN KELLY, White House chief of staff who stepped down on Jan. 2, responding to a question about why he stayed for 17 months in what he called a "bone-crushing hard job"

'If the United States continues to break its promises and misjudges our patience ... and pushes ahead with sanctions ... then we may have to seek another way to protect our country's sovereignty and interests.'

KIM JONG UN, North Korean dictator, warning the U.S. against further sanctions, in his annual televised New Year's Day address

'FOR SHAME.'

CHELSEA CLINTON, former First Daughter of the U.S., tweeting her response after New York Republican Congressman Peter King said that "only" two migrant children dying in custody was "an excellent record" for U.S. Immigration and Customs Enforcement



36

Number of World Cup slalom championships won by 23-year-old U.S. skier Mikaela Shiffrin as of Dec. 29, establishing her as the most successful female slalom skier in the circuit's history

Red pandas
Two captured after 15 hours on the lam from their Seattle zoo enclosure



Giant pandas
Two released into the wild in China's Sichuan province after being bred in captivity



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The Brief

INVISIBLE MAN
Victor Boyarkin,
center, was a
key conduit
between Paul
Manafort and
Oleg Deripaska,
a Putin ally



INSIDE

TRUMP'S INTRANSIGENCE ON
THE GOVERNMENT SHUTDOWN

SEVEN PREDICTIONS FOR THE
YEAR AHEAD

MIGRANTS IN TIJUANA FACE
TEAR GAS

PHOTO-ILLUSTRATION BY LON TWEETEN AND KIM BUBELLO FOR TIME

WORLD

Russian ex-spy pressured Manafort over debts to an oligarch

By Simon Shuster/Rhodes, Greece

WHEN THE U.S. GOVERNMENT PUT OUT ITS latest sanctions list on Dec. 19, the man at the top did not seem especially important. Described as a former Russian intelligence officer, he was accused of handling money and negotiations on behalf of a powerful Russian oligarch. The document did not mention that the man, Victor Boyarkin, also had a connection to the 2016 campaign of President Donald Trump.

A months-long investigation by TIME found that Boyarkin, a former arms dealer with a high forehead and a very low profile, was a key link between a senior member of the Trump campaign and a wealthy ally of Russian President Vladimir Putin.

In his only interview with the media about those connections, Boyarkin told TIME last fall that he was in touch with Trump's then campaign chairman, Paul Manafort, in the heat of the presidential race. "He owed us a lot of money," Boyarkin says. "And he was offering ways to pay it back."

The former Russian intelligence officer says he has been approached by the office of special counsel Robert Mueller, who is investigating possible collusion between Russia and the Trump campaign. Boyarkin's response to those investigators? "I told them to go dig a ditch," he says. Peter Carr, the spokesman for the Special Counsel's Office, declined to comment. Through his spokesperson, Manafort likewise declined to comment on his alleged ties to Boyarkin.

But those connections could be important to the special counsel's inquiry. They would mark some of the clearest evidence of the leverage that powerful Russians had over Trump's campaign chairman. And they may shed light on Manafort's history of entanglements in Eastern Europe in the decade before he went to work for Trump.

WHEN HE JOINED the Trump campaign in the spring of 2016, Manafort was nearly broke. The veteran political consultant had racked up bills worth millions of dollars in luxury real estate, clothing, cars and antiques. According to allegations contained in court records filed in the U.S. and the Cayman Islands, he was also deeply in debt to Boyarkin's boss, the Russian billionaire Oleg Deripaska, who was demanding money from



Manafort, Trump's former 2016 campaign chair, will be sentenced in February

Manafort over a failed business deal in Ukraine and other ventures.

Boyarkin says it fell to him to collect the debt from Manafort. "I came down on him hard," he says. To that point, the American had been elusive. In a petition filed in the Cayman Islands in 2014, lawyers for Deripaska, a metals tycoon with close ties to the Kremlin, complain that Manafort and his then partner had "simply disappeared" with around \$19 million of the Russian's money.

When he reappeared in the headlines around April 2016, Manafort was serving as an unpaid adviser to the Trump campaign. He wanted his long-time patron in Moscow to know all about it.

In a series of emails sent that spring and summer, Manafort tried to offer "private briefings" about the presidential race to Deripaska, apparently, as one of the emails puts it, to "get whole." Reports in the *Atlantic* and the *Washington Post* revealed those emails in the fall of 2017. Among the questions that remained unanswered was the identity of Manafort's contact in Moscow, the person referred to in one of the emails as "our friend V."

Even after TIME learned his full name in April, Boyarkin proved a difficult man to find. His online presence amounted to digital scraps: one photo of him at a conference in Moscow; a few benign quotes in the Russian media from his years selling arms for state-linked companies; and some vague references in U.S. government archives to someone by that name, "Commander Viktor A. Boyarkin," serving in the 1990s as an assistant naval attaché at the Russian embassy in Washington, D.C.—a job sometimes used as cover for intelligence agents.

Only in early October was a TIME reporter able

to track Boyarkin down. In the company of a senior Russian diplomat and two young assistants from Moscow, he attended a conference in Greece that was organized by one of Putin's oldest friends, the former KGB agent and state railway boss Vladimir Yakunin. "How did you find me here?" Boyarkin asked, repeatedly, when confronted about his ties to Manafort during a coffee break at that conference.

Once he agreed to discuss their relationship, it was mostly to confirm the basic facts, often with a curt, "Yes, so what." (Boyarkin did not respond to numerous requests for comment after his name appeared on the U.S. sanctions list on Dec. 19.)

THE OUTLINES of Boyarkin's career suggest a life spent at the intersection of Russian espionage, diplomacy and the arms trade. Having served at the Russian embassies in the U.S. and Mexico in the 1990s, dealing primarily in military affairs, he says he turned his focus to the arms trade in the early 2000s. His specialty was the export of small and medium-size warships and other naval vessels that were produced in Soviet-era shipyards across Russia. This business kept him in touch with military buyers from around the world, including various parts of Africa. By the late 2000s, Boyarkin had put this expertise in the service of Deripaska, whose global mining and metals empire often involved making deals with despots in the developing world.

As Boyarkin tells it, his acquaintance with Manafort goes back to the late 2000s, when both of them were working for Deripaska in Eastern Europe. Manafort has long been open about his work for the oligarch. "I have always publicly acknowledged that I worked for Mr. Deripaska and his company," he said in a statement to reporters in the spring of 2017.

It remains unclear whether Manafort owes debts to Deripaska and, if so, how much. A court in Virginia convicted Manafort in August on eight charges of bank and tax fraud related to his lobbying work in Ukraine; he is due to be sentenced in February.

When TIME met him in Greece, Boyarkin insisted that he has not worked for Deripaska since the end of 2016. But the U.S. government differs on that point: the Dec. 19 press release from the Treasury Department said Boyarkin "reports directly to Deripaska and has led business negotiations on Deripaska's behalf."

Those negotiations, involving mining deals in Africa and factories in Europe, were of secondary concern to U.S. investigators when they contacted Boyarkin last year, he says. Instead, they wanted to know about his links to Manafort, and the "private briefings" he had offered to Boyarkin and his boss. "They asked about all of that, yes," Boyarkin recalls. Once again, he says he told them to get lost. —*With reporting by* TESSA BERENSON/WASHINGTON

NEWS TICKER

Elizabeth Warren to run for President

Senator Elizabeth Warren announced on Dec. 31 that **she would form an exploratory committee to consider running for President in 2020.** The next day she announced plans to visit Iowa, the first state to vote in the Democrats' 2020 nominating contest.

Netflix blocks criticism of Saudi Arabia

Netflix removed an episode of the comedy show *Patriot Act With Hasan Minhaj* that was critical of Saudi Crown Prince Mohammed bin Salman. Netflix said it received a **"valid legal request" to comply with local cybercrime laws.** The episode is still available on YouTube in Saudi Arabia and on Netflix elsewhere.

Women enter Hindu shrine in protest

Two Indian women entered a Hindu shrine in the state of Kerala on Jan. 2 in protest over rules that said **women of "menstruating age" could not enter because they were "unclean."** That ban had been overruled by the Supreme Court in September, but women attempting to enter were barred by angry protesters.

THE BULLETIN

The sticking points in the government shutdown

Like a New Year's hangover, the partial government shutdown that began Dec. 22 has lingered into 2019. A new Congress was slated to be sworn in Jan. 3, when Democrats take control of the House of Representatives. But party leaders appear no closer to resolving a standoff with President Donald Trump over his demand for funding to build a wall on the border with Mexico. Here's what each side is looking for:

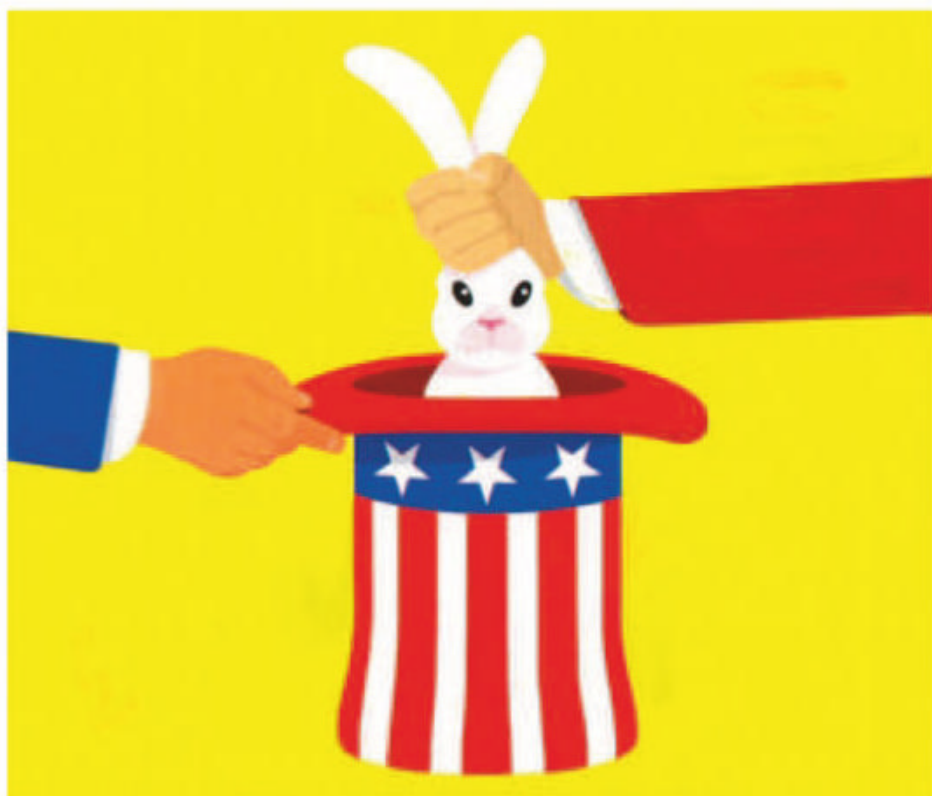
Trump has asked for \$5 billion to build about 200 miles of wall on the southern border. He's convinced the issue is a political winner. "The intensity level with Republicans and conservatives and Trump supporters," says Matt Schlapp, chairman of the American Conservative Union, "is through the roof" on immigration. So the President is determined to reassure his conservative base that he is fighting hard for his signature campaign promise.

House Democrats, led by Nancy Pelosi, want to block funding for a project they say is ineffective and immoral, while pinning the blame for the shutdown on the President. With polls showing that much of the public opposes the wall and blames Trump for the impasse, House Democrats plan to pass a bill to reopen the government, which would not include wall money. There's no sign the President would support it.

The Senate Republican majority mostly wants this problem to go away. The Senate previously voted unanimously to temporarily fund the government at existing levels, and Senate Democratic boss Chuck Schumer has offered the White House \$1.6 billion for border security. Now GOP Senate leader Mitch McConnell says he'll allow votes only on a deal Trump supports. The buck, in other words, stops at the Oval Office. —*Ryan Teague Beckwith, with reporting by Alana Abramson and Brian Bennett/Washington*

TheBrief YearAhead

Most weeks, we focus on the news of recent days. As a new year begins, we instead asked influential people from a variety of fields to guess what milestone moments or significant changes 2019 will bring.



The divided U.S. government will unite

By Orrin Hatch

AS UNLIKELY AS IT MAY sound, with Democrats controlling the House and Republicans controlling the Senate, I believe our government will secure a number of legislative victories for the good of the country.

This is not without precedent. I had what was arguably my most productive Congress during President Obama's final two years in office. While things may have appeared acrimonious on cable news, Democrats and Republicans worked late nights and weekends to secure a number of substantive bipartisan victories, from historic trade legislation to a comprehensive legislative package to address our nation's opioid crisis (which we did again last year). True, tensions ran high. But from

tension was born some of the most meaningful bipartisan work of the past decade.

And that Congress was no anomaly. One of my proudest achievements as a Senator was when I collaborated with Teddy Kennedy on the Children's Health Insurance Program—under a Democrat President, a Republican House and a Republican Senate.

The House will no doubt leverage its subpoena power, and the President will no doubt tweet his disdain for liberal legislators. But on the issues that matter most, Republicans and Democrats will come together. Because the nation depends on it.

Hatch was the longest-serving Republican in the Senate when he retired in December

More companies will combine—or vanish

By Andre Iguodala

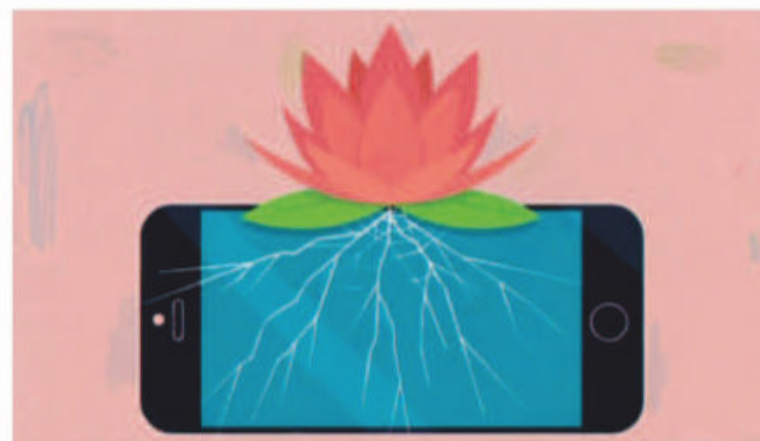
With the decline in market growth, we'll see more mergers and acquisitions, especially in the consumer space. The fashion industry will change forever, as the mid-market will be wiped out.

Iguodala, an NBA champion with the Golden State Warriors, was a style director at an online clothier

We'll take a mindful approach to our phones

By Marie Kondo

In 2019, I believe that there will be a greater shift toward mindfulness in the culture. As someone who has devoted herself to the business of tidying for more than a decade, I'm witnessing the shift firsthand. Tidying is the most basic chore, but interest in it is at an all-time high. In my tidying method, you choose what to keep based on how it makes you feel. People are starting to realize that happiness isn't something that you achieve from the outside—through technology or the newest fad—but, rather, from



within. I predict people will tune in to their inner voices and identify what sparks joy in all aspects of their lives, from their homes to their work and relationships. This mindful approach will also affect purchasing decisions

(Why am I buying this?) and reduce smartphone usage (Does this habit really bring me joy?).

Kondo is the author of The Life-Changing Magic of Tidying Up; her Netflix show Tidying Up With Marie Kondo launched on Jan. 1

ILLUSTRATIONS BY PETE RYAN FOR TIME

Non-Russia scandals will grab our attention

By Kevin M. Kruse

The Mueller probe has understandably attracted a great deal of attention over the past year, but there are also a large number of other controversies swirling around nearly a dozen Cabinet secretaries and agency heads in the Trump Administration. In any other era, one of these scandals would have paralyzed a presidency; several at the same time would have ended it. Despite widespread accounts of misconduct by department heads and Administration officials, few have faced any consequences. Over the past two years in the minority of the House Committee on Oversight and Government Reform, Democrats watched in frustration as Republicans blocked over five dozen subpoenas. But with Democrats in charge and a new chairman, Representative Elijah Cummings, the committee will surely pursue these subpoenas and more. Officials who have managed to steer clear of the Trump-Russia furor these past two years will soon find themselves at the centers of their own scandals.

Kruse is a professor of history at Princeton and a co-author of the book Fault Lines

Genetic science will face greater control

By Jennifer Doudna



IN 2019, WE CAN EXPECT accelerating scientific research and practical advances using CRISPR-Cas9—a tool that allows scientists to easily change an organism's DNA—toward cures for genetic diseases, enhanced drug development, reprogrammed immune cells to fight cancer, improved transplant organs and even more nutritious crops.

But the scientific community will also redouble efforts

to define high ethical, scientific and safety standards for anyone using the technology. This recently became more critical. After my colleagues and I first described the creation of CRISPR-Cas9 technology in 2012, we called for a moratorium on using it to alter human embryos—a principle endorsed by standard-setting groups worldwide. The practice has been banned in many countries. But in late 2018, a

scientist in China announced the birth of the first CRISPR-edited babies—a radical break from fundamental norms. There must be consequences to ignoring the criteria scientists and lawmakers set.

Already, CRISPR-Cas9 technology is entering legitimate clinical trials that could lead to cures for sickle cell disease and blindness in individuals, and 2019 will likely see an acceleration of this amazing progress. Though we should be mindful not to overregulate and negatively impact important research, the global community should work together to ensure that such advances come as safely and quickly as possible while respecting ethical boundaries.

Doudna, a co-inventor of CRISPR-Cas9, is a professor at the University of California, Berkeley, and a co-author of A Crack in Creation

Behind-the-scenes diversity will bloom

By Nana Kwame Adjei-Brenyah

In books, I think there will be changes not just with which authors are published, but in editorial staff, as companies become more inclusive. And it won't just be publishing. The door's open; it's time to get in—and once you're in, then you can help to change the culture.

Adjei-Brenyah is the author of Friday Black and a National Book Foundation "5 Under 35" honoree

... and someone, somewhere, will enjoy a burrito

By Rachel Bloom



I predict that on Aug. 5, 2019, a man named Mark in Topeka, Kans., will eat a bean and cheese burrito for the first time in his life. On Aug. 6, 2019, Mark will then tell his young cousin, "Hey, bean and cheese burritos aren't bad, I finally tried one." That cousin will grow up to become the U.S. Secretary of Education. This career path will have absolutely nothing to do with his cousin Mark's bean and cheese burrito.

Bloom, an actor and comedian, co-created and stars in Crazy Ex-Girlfriend

Maine Republican **Susan Collins** is one of the last centrists in the Senate

By Tessa Berenson

JUST OFF THE SOARING, TOURIST-FILLED rotunda of the U.S. Capitol building, down a chandeliered hallway, up a few floors in what feels like the world's tiniest elevator, in a narrow, echoing corridor, lies the hideaway of Senator Susan Collins. The private office, a perk doled out by seniority, is appointed in creams and florals and feels warm but not exactly homey. Most of all, it is secluded—no staff, no uninvited visitors, no constituents. And it was in this hidden space in late September that the Republican from Maine weighed one of the most divisive decisions of her 21-year career in Congress: whether to vote to confirm Brett Kavanaugh to the U.S. Supreme Court.

Months later, artifacts of that episode are still visible. Two newspapers with reports on Kavanaugh's contentious confirmation hearings sit on the wooden desk: a copy of the *New York Times*, with an image of Kavanaugh's now infamous high school calendar on the front page, and the *Washington Post* from the following day, showing Kavanaugh and Christine Blasey Ford, who accused the judge of sexual assault, testifying before the Senate Judiciary Committee, both of them near tears.

In those jagged weeks, Collins faced an onslaught of pressure from the left to oppose the conservative judge's nomination. There were the coat hangers: 3,000 of them mailed to her office, meant to evoke the era of back-alley abortions. (She donated most of them, including 400 she sent to a thrift store in Maine.) There were phone calls from people threatening to slit her throat, she says, or telling her staffers they should have abortions and then bleed out and die. There was a ricin threat and an anthrax scare. A young female staffer in Maine quit because of the constant harassment.

None of it daunted Collins, who has spent decades as a pivotal swing vote in the Senate. Recalling the episode on a cold November afternoon, Collins says she was "baffled" that activists thought they could threaten her into voting their way. "I would never be intimidated by that," she says, sitting up straighter in her burgundy leather chair.

In the end, Collins cast one of the decisive votes for Kavanaugh, announcing her decision with a speech that shredded any illusions that she was

unsure about her choice. Her vigorous defense of Kavanaugh, coming from one of the Senate's last remaining moderates, showed just how polarized the chamber has become in the Trump era. And it highlighted how difficult it is to be a centrist when everyone else has retreated to hyperpartisan corners. In this moment in American politics, Collins can seem like the last of her kind.

COLLINS CAME TO THE SENATE in 1997, the latest in a long tradition of moderate Maine Republicans. The other Senator from Maine when she arrived, Olympia Snowe, was from a similar mold: conservative on fiscal policy and national security but a supporter of gay rights and abortion rights. And it wasn't just Maine. Two decades ago, there were 10 Republicans representing New England in Congress.

Today those moderate Northeastern Republicans are all but extinct. As of 2019, Collins is the only one left in either chamber. Over her career, a chasm has widened between the two political parties. And Collins' own voting record tracks the shift. In 2017, Trump's first year in office, she voted along party lines 87% of the time, according to a CNN analysis—more than any other year she's been a Senator. At the same time, she was also the Republican Senator most likely to break ranks. "I'm very worried about that," Collins says. "The center is diminishing."

It was in this environment that Collins emerged as the target of Kavanaugh's opponents. Amid the coat hangers and the threats, there was only one instance in which Collins says she was truly afraid. Late one night, Collins arrived home in the pouring rain. It was dark, the streets around her Washington townhouse were deserted, and her hands were full with her briefcase and a bag of dry cleaning. A man was waiting for her. As she approached her front door, he shone a light in her face and screamed anti-Kavanaugh screeds. "Stop harassing me!" she yelled back at him, shielding herself with her bags as she fumbled with her keys. She made it inside, safe but shaken.

As Collins considered her decision on Kavanaugh, she knew that half the country would hate whatever she did. But if anything, the protesters may have had the opposite of their intended effect, making Collins dig in her heels. "It is certainly obvious to me," she says, "that my life would have been a lot easier if I had voted the other way." She announced her vote to confirm Kavanaugh in a nearly hour-long speech on the Senate floor on Oct. 5. It was a vociferous defense of the judge and a searing indictment of a confirmation process that she said "looks more like a caricature of a gutter-level political campaign than a solemn occasion." The Senator delivering that speech was not someone waffling in

COLLINS QUICK FACTS

Senior Senator
Collins first joined the chamber in 1997. She's now the 12th longest serving member and the most senior Republican woman.

Liberal target
Democratic activists have already raised more than \$3 million to fund the 2020 campaign of her challenger.

Trump skeptic
Collins announced in 2016 that she wouldn't vote for Trump for President, but she has rarely broken party lines since.



the middle; she was a woman voting confidently, granting a generational win to conservatives and dashing any liberal hopes of sinking Kavanaugh. If there is a center in the Senate anymore, Collins wasn't in it that day.

COLLINS' OWN LIFE has mostly gone back to normal, and she's had some time to ponder the state of a country that seems to have lost its ability to come together. "We've seen a coarsening of conversation, a lack of dialogue and an absence of respect for those who disagree with us," she says. "Instead, there's now vehement ill will toward people who simply have a different viewpoint on an issue."

Collins is up for re-election in 2020. In these circumstances, does she really want to run again? "That is my intention," she says, although she has not announced a final decision. In a re-election campaign, Collins could get hammered from both sides, with Democrats still irate over the Kavanaugh vote and the GOP upset by her occasional willingness to go against the party, as when she voted against the repeal of the Affordable Care

In this moment in American politics, Collins can seem like the last of her kind

Act in 2017 or voted against some Trump Cabinet nominees. According to one tracking poll, Collins' approval rating in Maine dropped 9 percentage points overall after her vote on Kavanaugh, to 45%, and her approval rating among Democrats dropped a whopping 25 percentage points.

Collins says she remains optimistic about the Senate's ability to make progress. "There are still more issues that unite us than divide us," she insists. The Senate just passed a sweeping bipartisan criminal-justice reform bill, which Collins co-sponsored. She wants to pass a comprehensive infrastructure bill and legislation to lower prescription-drug prices, two issues with some support on both sides of the aisle.

Here in Collins' hideaway, where the crumpled, emotional faces of Kavanaugh and Ford still stare out from the front pages on her private desk, a rebirth of bipartisanship feels like a fantasy. Still, for at least the next two years, Collins will keep operating from the center of a Congress pulling away from her, trying to do the work she cares about. Even if half the country hates the way she votes. □





LightBox

Border aftermath

Migrants in Tijuana stand by tear-gas canisters that U.S. Border Patrol officers shot toward the Mexican side on Jan. 1. U.S. Customs and Border Protection said agents used tear gas to deter rock throwers, who the agency said were separate from a group of 150 migrants trying to cross the border. Though it said the chemicals were not aimed directly at migrants, an Associated Press photographer saw at least three volleys of gas that affected migrants, including children, and saw rocks being thrown only after tear gas was fired. Thousands of Central Americans are waiting in Tijuana for a chance to seek asylum in the U.S.

Photograph by Daniel Ochoa de Olza—AP

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and handsome
remains a classic
for a reason”
— Men’s Journal

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—M., Wheeling, IL

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The View

INNOVATION

HOW AMERICA LOSES ITS EDGE

By Walter Isaacson

For the past 50 years, the rational exuberance of the American economy has been propelled by the combination of three innovations: the computer, the microchip and the Internet. The research and development that produced each came from a triangular alliance of government, academia and private business. ▶

TheView Opener

This tripartite machine of government working with universities and private corporations was not merely a random array with each group pursuing its own aims. Instead, during and after World War II, the three groups had been purposely fused into an innovation triangle.

The person most responsible for forging this assemblage was Vannevar Bush, an MIT professor who had built an early analog computer in 1931 and oversaw the Manhattan Project to build the atom bomb as well as projects to develop radar and air-defense systems. When the war ended, Bush produced a report in July 1945 at the behest of President Roosevelt that advocated government funding of basic research in partnership with universities and industry. Bush chose an evocative and quintessentially American title for his report: “Science, the Endless Frontier.” “Basic research leads to new knowledge,” Bush wrote. “It provides scientific capital. It creates the fund from which the practical applications of knowledge must be drawn.”

Today, we risk finding the end of that frontier. The question now, says Eric Lander, one of the leaders of the Human Genome Project, is “whether America will yield its position as the world’s leader in science and technology. For the first time since World War II, our primacy is in jeopardy.”

A 2017 REPORT from the Atlantic Council echoed Vannevar Bush’s phrasing when it called such examples of federally funded basic research at university and corporate labs “the nation’s scientific seed corn, enabling basic, pre-competitive R&D that will mature into harvestable technologies in the future.” However, the report noted, “federal R&D spending has shrunk significantly over the last few decades; once the world leader, the United States now ranks 12th in government-funded R&D spending as a percentage of GDP.” Federal R&D spending has declined from about 1.2% of GDP in 1976 to less than 0.8% in 2016. This is the lowest level since the pre-Sputnik era.

In the 1960s, around 70% of total R&D was federally funded, with 30% coming from the private sector. Now



MIT’s Vannevar Bush, circa 1935,
with an early analog computer

those figures are reversed. As the balance has shifted away from government funding at university research labs, there has been a reduction in basic scientific research that is aimed at creating the fundamental theoretical knowledge that can produce the seed corn that will eventually lead to great innovations.

This decline in scientific investment in basic research and university labs is not a partisan phenomenon or a product of the Trump Administration. For almost 25 years, federal funding for university research and state funding for higher education have been in decline. From 2011 to 2015, during the Obama Administration, federal investment in university research declined by 13%.

But it’s now getting even worse. In the latest proposed budgets from House Republicans and the Trump Administration, federal funding for science and technology research would be cut by an additional 15%. The potential economic and security

ramifications of this shift can be foreshadowed by looking at the opposite approach now being taken by China, which is heavily funding basic scientific research, including in vital fields such as artificial intelligence (AI) and genetic engineering.

Take the AI sector, for example. In its 13th Five-Year Plan, released in 2016, China’s leadership announced its ambition to transform China into a “nation of innovation” by launching 15 “Science and Technology Innovation 2030 Megaprojects.” It was a steroid-charged version of Bush’s 1945 paper urging America to combine federal dollars with university and corporate labs. In May 2017, China added “Artificial Intelligence 2.0” as the 16th megaproject.

The goal of this project is audacious yet simple: to make China the world leader in AI by 2030. Combining government dollars with corporate and academic initiatives, China is now building an ecosystem that would transcend even Bush’s wildest dreams.

The local government of Tianjin, a city two hours from Beijing, is raising a \$5 billion fund to support

AI development, and the central government is building a \$2.1 billion AI technology park in Beijing's western suburbs. Guided by the government's vision, money is also flowing into the Chinese private sector. China accounted for 48% of the world's AI startup funding in 2017, compared with 38% for the U.S.

The funding and investments are already paying off. China's students and programmers are now routinely winning international competitions in AI and machine learning. Baidu is at the forefront of AI, with 2,000 researchers, including in offices in Silicon Valley and Seattle. It now rivals Google as a global leader in AI research and boasts the most accurate and powerful program for speech recognition.

China has one other advantage that the U.S. should not envy. It has fewer restrictions on data collection and less compunction about violating personal privacy. This is unnerving, but it is also an advantage because Big Data will fuel many AI advances. China sits on a growing reservoir of Big Data, making it, as the *Economist* put it, "the Saudi Arabia of data."

There are elements of China's technology and innovation initiatives that the U.S. will not wish to emulate. But the political and ethical restrictions in the U.S. make it even more important for the U.S. to stay ahead of China in other ways, most notably funding basic research into science and investing in university and corporate labs.

A good place to start would be revitalizing our investments in research universities and ensuring that foreign students are welcomed to those universities. We must also resist efforts to both slash funding for basic research and tax graduate students' fellowships. We must also oppose taxing university endowments, which Congress recently passed.

Reversing such policies is the critical first step to creating, once again, the research breakthroughs that will lead to future innovations, rather than continuing on America's new path of destroying our seed corn before the next harvest.

A version of this essay was originally published by the Aspen Strategy Group

THE RISK REPORT

What the world's leaders are resolving to do better in 2019

By Ian Bremmer



EVERY YEAR around this time, people dedicate themselves to self-improvement in the 12 months ahead. So, as a

break from my usual column, I'd like to read the minds of the luminaries of global politics and share their New Year's resolutions for 2019:

President Donald Trump:

I resolve to win the trade war with China which is CHEATING us, repeal Obamacare, build a big BEAUTIFUL border wall, cut everyone's taxes, balance the budget FAIRLY QUICKLY, order a total and complete shutdown of Muslims entering the United States until our country's representatives can figure out what the HELL is going on, take no vacations, play no golf, tell everyone there was NO COLLUSION, make America GREAT again and lose three pounds. Just like last year!

British Prime Minister Theresa May:

This year, I will keep calm and carry on ... Oh, who am I kidding? I resolve to take one more shot at this Brexit nonsense and, if it doesn't work, pass this utterly thankless job to Boris Johnson or Jeremy Corbyn and see how they like it, thank you very much.

French President Emmanuel Macron:

I will listen more closely to the desires of my subjects and ensure their government can provide plenty of cake when they are hungry. *L'état, c'est Macron!*

Chinese President Xi Jinping:

In 2019, I resolve to project steady confidence, keep making promises and remain patient until Donald Trump is no longer in my path. I then resolve to proceed as before.

North Korea's Kim Jong Un:

In 2019, I resolve to project steady

confidence, keep making promises and remain patient until Donald Trump is no longer in my path. I then resolve to proceed as before. And to take even more selfies with world leaders.

Russian President Vladimir Putin:

I will guarantee Ukraine's elections in March are an event to remember, and promise to use all my discipline and inner strength to avoid laughing at what comes next in the United States, and to find new ways to annoy Washington that are so inventive I surprise even myself.

Brazilian President

Jair Bolsonaro: This year, I'll show the world why my family gave me the middle name Messias. I resolve to break corruption, devour criminals, bring dignity back to the office of President and make Brazil great again.

Saudi Crown Prince

Mohammed bin Salman: I will take a deep breath and count to 50 whenever

someone says something about me that I don't like, work really hard to be my best self and to make new friends. In Russia and China, mainly.

Julian Assange:

This year, I'll be a better guest for my hosts in the Ecuadoran embassy in the U.K. I will do all my dishes; clean the cat's litter box on Mondays, Wednesdays and Saturdays; and keep digging that tunnel in the basement for the moment we all know is coming.

German Chancellor Angela

Merkel: I resolve to hide my increasingly obvious glee at the reality that after 2021, I won't be responsible for solving Europe's problems and healing all these self-inflicted wounds anymore. Mutti out!

Special counsel Robert Mueller:

This year, you can be sure of one thing. I will [REDACTED]. □

As a break from my usual column, I'd like to share these New Year's resolutions for 2019 from the luminaries of global politics

Why Trump's generals abandoned ship

By James Stavridis



AFTER A COUPLE OF TUMULTUOUS years, President Donald Trump seems to have reached the conclusion that he has had quite enough of generals. Now, as a retired admiral, I have certainly been annoyed over the years by a number of generals. Yet by and large, I've found them quite effective as leaders, organizers, planners and strategists—the type one would expect from those who have proved their mettle in the long hierarchical climb up the ranks of the modern armed forces. Additionally, the vast majority are driven by integrity and the values of courage, honor, commitment—while having been tested in life-and-death situations. All in all, a pretty good selection of qualities. So why, after hiring quite a few, is the President turning on them?

In the cases of Generals H.R. McMaster, John Kelly and, finally, James Mattis—all of whom I've counted as not just colleagues but also friends—the details of each individual departure vary somewhat. But the common theme is actually pretty simple: President Trump simply cannot be briefed, staffed, scheduled or organized in a manner that long-serving military personnel find effective. I once asked Mattis—while he was considering the offer to become Secretary of Defense—how hard he thought it would be to work with a personality like Trump. He said it might not be “mission impossible” but he knew it was going to be “mission very difficult.” This from a man who has repeatedly taken on the toughest of assignments.

The President famously does not actually read the voluminous policy papers with which he is presented. From the perspective of a senior military mind, this would be akin to a car refusing to be gassed up. According to multiple reported accounts, Trump's briefings have to be put in the simplest terms; the traditional complex military PowerPoint slides were anathema to him. The military presents its shared wisdom by detailing a traditional set of information: assumptions, existing conditions, courses of action, centers of gravity and, in the end, the ultimate three options suggested to the decisionmaker; the President prefers to go with his gut. This made for a continuous collision between the President and his generals, and the recent series of decisions-by-tweet (notably including the withdrawal from Syria) truly underscore the impossibility of molding the President's approach.

There was also an ongoing sense that the President's moral structure was, shall we say charitably, unconventional to the military mind. Cadets and midshipmen at the service academies operate on a very simple honor code: to not lie, to not cheat, to not steal. Every year, a handful of young officers run afoul and are summarily dismissed. For those who follow along the career path, any officer who violates the Uniform Code of Military Justice in any way—from sexually

TERMS OF SERVICE

The three former generals have left the Trump Administration



H.R. McMaster

Served as
National Security Adviser
February 2017
to April 2018



James Mattis

Served as
Secretary of Defense
January 2017
to December 2018



John Kelly

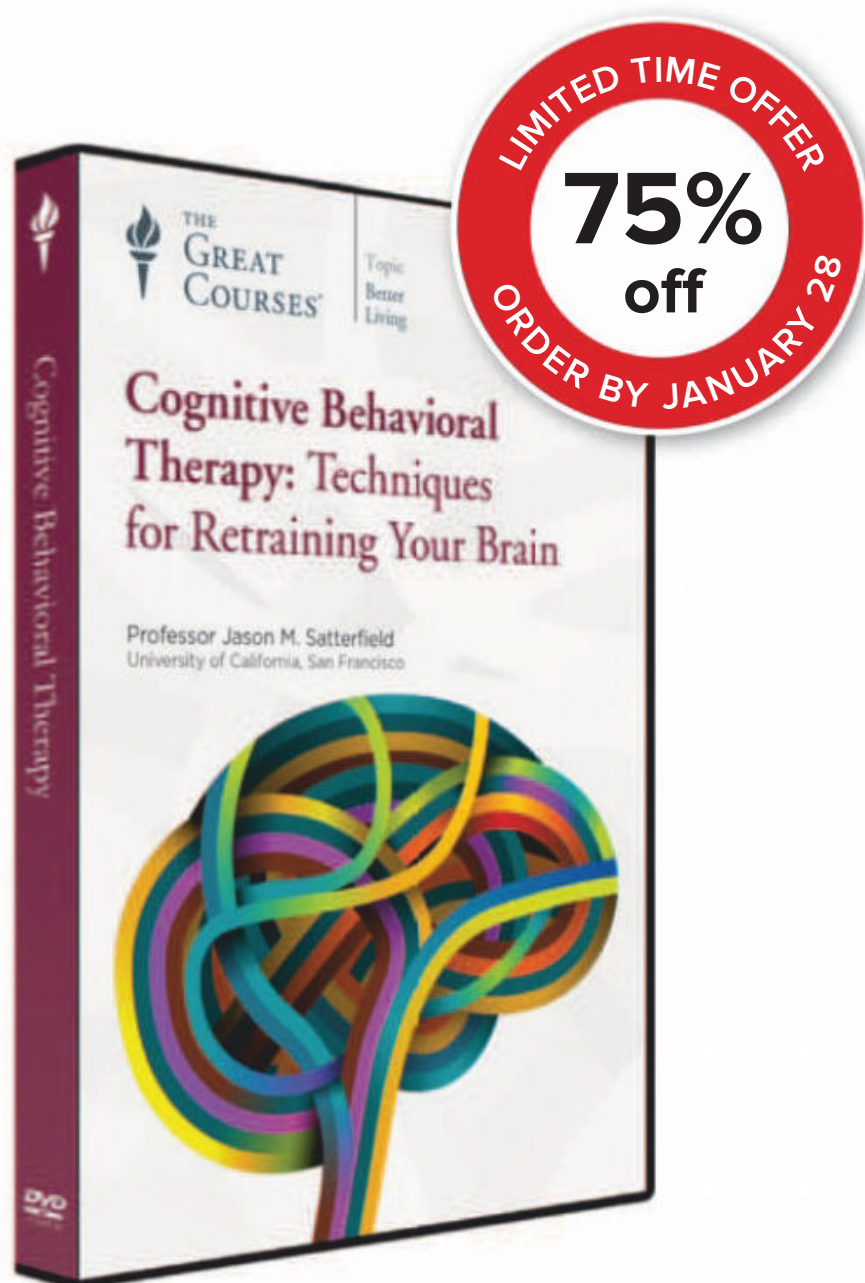
Served as
White House chief of staff
July 2017 to
January 2019

propositioning a subordinate to misrepresenting the finances of his unit—would be court-martialed and removed from the service. The President's style of playing loose with the truth and facts—including by saying on Jan. 2 that he “essentially” fired Mattis, something he did not do—grate on the military mind. General Stanley McChrystal, who retired during the Obama Administration, said in a recent interview that Trump is a liar and an immoral figure. His blunt and direct comments provide a pretty good summary of what most generals think about the President's character.

PERHAPS THE BETTER QUESTION is, What attracted Trump to generals in the first place? It seems he was attracted to the macho, direct, domineering profile that many civilians associate with generals, like Jack Nicholson's portrayal of a Marine in *A Few Good Men*. He may have thought associating with them would burnish his own credentials as an alpha male. (Remember, he also hired General Michael Flynn, who later pleaded guilty to making false statements to the FBI.) But it has likely dawned on Trump that generals are more cerebral than he ever would have guessed, have a pesky habit of quietly judging him in ways that got under his skin, are more intellectual planners than operational Rambos, and don't quite care about the politics and media signals that the President holds dear.

In the military, we say the first duty of an officer is to bring order out of chaos. I'm glad that the generals stepped into the breach. But in the end, each of them had to ask himself, *At what point does my serving in this White House become less a guardrail and more an enabler? And what will it ultimately mean that the hard-won credibility of my life and career supported the work of this Administration?* That is an intensely personal choice that I suspect each will address over time. But I do believe that for each of them, leaving had a modicum of relief mixed in with the bitter knowledge that try as they might, they could not accomplish the mission.

Stavridis was the 16th Supreme Allied Commander at NATO and is an operating executive at the Carlyle Group



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Nation

An oil pump churns in Midland, Texas, the heart of the Permian Basin oil boom

PHOTOGRAPHS BY BENJAMIN LOWY



THE POWER OF THE PERMIAN

**An oil boom
in West Texas
is reshaping
the economy,
the nation
and the world**

**BY JUSTIN WORLAND/
MIDLAND, TEXAS**

My view from the window seat of a small regional jet landing in Midland, Texas, is either a testament to the advances of human civilization or a sign of its impending demise, depending on your perspective. Countless oil wells, identified by their glowing red flames, dot the dark landscape.

We are descending into the Permian Basin, the heart of American oil country, where the massive oil and gas boom is changing not just Texas but also the nation and the world.

This year the region is expected to generate an average of 3.9 million barrels per day, roughly a third of total U.S. oil production, according to the U.S. Department of Energy. That's enough to make the U.S., as of late 2018, the world's largest producer of crude. The windfall has turned a nation long reliant on foreign oil into a net exporter in a few short years.

Not even the plunge in oil prices in recent months, which led some companies to scale back their plans for the Permian, has stopped the enthusiasm. Analysts predict the region's output will expand in coming years, thanks to cost-reducing advances in hydraulic fracturing, better known as fracking, to release oil from shale, plus changes in U.S. export policy. By 2025, U.S. oil production is expected to equal that of Saudi Arabia and Russia combined, according to the International Energy Agency (IEA).

The power of the Permian oil and gas boom is easy to spot in the basin itself, which stretches across more than 75,000 sq. mi. of scrubby ranchland in West Texas and New Mexico. So-called man camps—hastily constructed short-term housing for oil-field workers—have sprung up everywhere, amid new luxury construction projects and shiny billboards advertising Rolexes to laborers pulling in six-figure salaries. But the impact extends far beyond the region.

During the past three years, the boom in these parts has transformed the U.S. economy, upended the international energy industry, undermined global environmental efforts and tilted the balance of power among Beijing, Moscow and Washington. In places like Saudi Arabia, uncertainty over future oil profits driven by rising U.S. production contributed to a rethinking of the economy. In theory, less reliance on Saudi oil also

gives the U.S. more leverage in other areas, like the war in Yemen, although the Trump Administration hasn't prioritized such efforts. The vast new U.S. oil reserves have provided cover for the imposition of tough sanctions against nations like Iran and Venezuela, moves that at other times might have crippled global supply. And around the world, the boom in the U.S. has inspired other countries to race to develop their own shale resources. "In a shale revolution world, no country is an island," says Fatih Birol, who leads the IEA. "Everyone will be affected."

The question is how. Presidents Donald Trump and Barack Obama have championed the nation's growing oil and gas markets. Abundant new shale reserves have driven economic growth and regional job creation while reducing costs for American consumers and manufacturers.

But analysts across the political spectrum caution that the energy windfall presents profound challenges as well. Neither energy markets nor national security are simple, and they overlap in complex ways here. In the long term, the boom actually threatens to undermine bipartisan efforts to establish U.S. energy independence. It could destabilize international partnerships, make the U.S. vulnerable to trade retaliation and raise formidable new hurdles in the ongoing effort to curb climate change. The nation's response to the opportunities and risks raised by the Permian Basin boom will shape our economic, environmental and geopolitical prospects for generations.

THERE'S NOTHING QUITE like oil country in boom times. Across the Permian, gas stations, retail shops and fast-food restaurants advertise perks like \$15-per-hour pay and 401(k) benefits as they compete to lure workers. Bare-bones motels charge hundreds of dollars a night. Local restaurants, patronized by women clutching designer handbags, charge \$18 for a salad.

The surge in production in the Permian came at a propitious time. In the aftermath of the 2008 recession, oil demand spiked just as drilling technology unlocked layers of rich shale. Locals are eager to tout the spoils. In Odessa, Texas, entrepreneur Toby Eoff shows me the defunct theater the city is paying to renovate to house stage productions. Next door, Eoff and his wife are building a \$79 million Marriott and conference center. Collin Sewell, who runs a group of car dealerships in the region, points out the window of his brand new office to the lot full of Ford trucks his employees serviced that day. When I visited him in September, his sales were up 50% from 2016. "When it's good, it's awesome," Sewell says.

A couple hours away, in Hobbs, N.M., population 37,000, Mayor Sam Cobb gave me a tour of a brand new, \$61 million recreation center, supported by the city's growing tax base. It's 158,000 sq. ft., with two four-story-tall water slides that loom over a giant pool, a soccer field and basketball and racquetball



courts. Residents work out on Technogym equipment, the Rolls-Royce of exercise gear.

While previous oil booms have ended in busts that devastated the region, local officials say this time is different. In the past, high oil prices fueled short-lived enthusiasm that dwindled when the price of crude dropped. But recently, drillers have flocked to the Permian despite low oil prices, in part because fracking and other technological advances have made extraction so cheap. Drillers strike crude in areas inaccessible just years ago. “We’re not looking for hydrocarbons, because the hydrocarbons are there,” says Vicki Hollub, CEO of Occidental Petroleum. “The Permian will continue for many years to come.” A report from the Federal Reserve Bank of Dallas estimates that new Permian oil wells break even around \$50 a barrel—far less than the \$80 that Saudi Arabia spends on average, according to the International Monetary Fund, to extract the same quantity of crude. “We don’t use the *B* word,” says Bobby Burns, president of the Midland Chamber of Commerce. “*Boom* doesn’t really describe it.” The Permian, he says, will be a force for a generation.

The main problem at this point, energy executives say, is there’s not enough infrastructure to handle

^
Oil workers,
known as
roughnecks,
extracting oil at
a Midland rig
in May 2018;
many laborers
earn six-figure
salaries because
of high demand

all the oil and gas coming out of the ground. As a result, many drillers simply burn off valuable natural gas rather than capturing and selling it. Companies are also struggling to ship oil. In 2017, more than a quarter of U.S. oil exports—112 million barrels of crude—left from the port of Corpus Christi, Texas. The world would have taken much more, which is why a \$327 million expansion is under way, the centerpiece of a slew of projects that could double the port’s export capacity in the coming years. When it’s completed later in 2019, a new crude-oil pipeline planned by a partnership of three companies will link the Permian oil fields and Corpus Christi, winding some 730 miles through Texas backcountry, picking up cargo along the way. It’s expected to transport 550,000 barrels of crude every day to ships that will carry it around the globe.

Environmental groups have opposed the new pipelines and expansions. The more oil and gas that’s pulled from the earth, transported, exported and burned, they argue, the faster the climate warms. But energy executives point to the region’s vast reserves and to demand. “It’s got to go somewhere,” says Brad Barron, the CEO NuStar Energy, a pipeline company operating in the Permian and Corpus Christi.

All this has come with costs. The man camps and other temporary housing facilities have been marred by crime and drug abuse. Home prices have soared. Roads and highways, many designed for ranchers, have become overrun by trucks and tankers, making them some of the most dangerous in the country. (During a violent storm in September, I pulled to the side of the highway in Andrews County, Texas, for half an hour, uncomfortable with careening big rigs in low visibility.)

But the most detrimental effects may be the hardest to see. Some locals, like Sharon Wilson, worry about the ramifications of nonstop fracking operations in their backyard. A Texas native and former oil company employee, Wilson is an organizer with Earthworks, a Washington-based environmental group. Using an infrared camera to capture images of gas leaks, she says she regularly detects dangers leaking from wells, including methane, a greenhouse gas that is responsible for about a quarter of global warming worldwide. Some locals have also suffered from exposure to other substances, she says, including benzene, a chemical in crude classified as a carcinogen. While it's difficult to measure the broad scale of the Permian's environmental impact, or its localized effect on health, Wilson says the leaks in the basin today are the worst she has seen in her years of tracking leaks. "Nothing can even come close," she says. "It's unimaginable what's happening out there."

THE PERMIAN BOOM transformed America's place in global energy markets almost overnight. Until recently, federal law forbade American producers from exporting crude oil at all, a policy holdover from the 1970s, when energy shortages racked the nation. But in the first decade of the new millennium, fracking and horizontal drilling opened vast new reserves of previously untapped oil. Public policy changed too. In December 2015, Obama signed a bill negotiated by congressional leaders that lifted the four-decade ban on exporting crude.

The resulting explosion in oil production has remade swaths of the U.S. economy and acted as something of a nationwide stimulus package. By helping keep the price of oil and gas low, domestic energy production aided other industries as well, tamping down the cost of air travel, trucking and even agricultural goods, because of the reduced cost of the diesel fuel many farmers rely on.

But determining the economic value of all this new oil and gas requires complex calculations. Using oil production as a pillar of the economy sounds good when prices are low, but it could hurt down the road. Consider energy security. Policy experts across the ideological spectrum have long insisted the best way to curb oil dependency is to develop diverse energy sources. That's why President George W. Bush, who lived in Midland as a child, signed a bill imposing

**'IT'S NOT
JUST BOOM
AND BUST
THAT HURTS.
VOLATILITY
ITSELF
HURTS
PEOPLE.'**

JASON BORDOFF,
director of Columbia
University's Center
on Global Energy
Policy



more stringent fuel-economy standards, and it's one of many reasons Obama embraced funding for renewable energy. It also explains why GOP lawmakers who champion fossil fuels and express skepticism about climate change have also supported research into alternative energy.

These measures make sense no matter how much oil the U.S. produces, especially because the price of crude is sensitive to global events. Instability in Iraq or a burst pipeline in Canada can bump the price at the pump for U.S. consumers. The abundance generated by the Permian may obscure the risks posed by our reliance on oil, says Jason Bordoff, who advised the Obama Administration on energy and climate policy and now heads Columbia University's Center on Global Energy Policy. "It's not just boom and bust that hurts," he says. "Volatility itself hurts people."

Moreover, while the U.S. is now a net oil exporter, the boom may have given political and industry leaders a false sense of security. One reason is that the U.S., despite the treasure trove beneath the Permian,



doesn't have the ability to process much of what it produces. Many of the refineries sprinkled across the Gulf Coast aren't built to work with U.S. crude oil, which is lighter than the product the U.S. imports from countries like Venezuela and Canada. As long as that's the case, the U.S. has to continue importing oil even if, in theory, it's producing enough of its own.

For decades, safeguarding access to imported oil has been a pillar of U.S. foreign policy. That's meant carefully maintaining relations with petrostates like Saudi Arabia and using the military to ensure stability in resource-rich regions. Under Trump and Obama, the U.S. has sought to strengthen ties with countries that import oil and gas as well. It's unclear how this new dynamic will shape U.S. relations abroad.

George David Banks, a former Trump Administration energy adviser, says the Permian windfall has expanded U.S. soft power. "The whole transformation has put us back into a role to help define the policy of global energy production and not just as a consumer," Banks says. But others analysts worry

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*Pipes at NuStar
Energy's facility
in Corpus
Christi, Texas, a
key port linking
oil from the
Permian Basin to
the world*

that if the economy becomes dependent on crude exports, the U.S. could become increasingly vulnerable to retaliatory tactics. Washington officials saw a glimpse of that in 2018, when China threatened to impose tariffs on U.S. oil and gas amid the trade war between the two superpowers.

All these questions set aside the primary challenge arising from the U.S.'s newfound oil reserves. Burning fossil fuels causes climate change, and the more oil and gas the U.S. produces and exports, the faster the world will warm. Many Americans see the issue through a moral lens: by drilling in the Permian Basin today, we contribute to a sicker world for future generations. Research has shown the world needs to halve greenhouse gas emissions by about 2030 to keep temperatures from rising to unsafe levels. That will be hard enough without unabated drilling in the Permian or anywhere else.

Trump has dismissed such concerns. Since taking office, his Administration has systematically slashed environmental regulations and sought to open vast new areas to drilling, including coastlines and federal lands. In theory, those moves help U.S. oil and gas companies. And while many industry leaders have praised the policies, others see reasons for long-term alarm. As Europe and the rest of the world impose increasingly stringent regulations on imported oil and gas, American energy companies—particularly large multinational corporations—could find themselves pariahs on the global market. French President Emmanuel Macron suggested last year that high-carbon products from countries that aren't committed to addressing climate change could face additional trade barriers, an idea that has gained attention among stakeholders working to deal with the issue.

Perhaps it's no surprise then that a handful of energy companies, including Shell and Chevron, have begun to change some of their climate policies, including calling for measures like a carbon price. ExxonMobil asked the Environmental Protection Agency (EPA) in December to uphold an Obama-era rule on methane emissions that the Trump Administration has sought to weaken. "Reasonable regulations help," the company said in a letter to the EPA.

Hollub, the CEO of Occidental, whose company is one of the biggest drillers in the Permian, has chosen to focus on capturing and storing CO₂, even as the Trump Administration has rejected calls for a carbon tax or other forms of carbon pricing. The company benefits from a tax incentive for doing so. But Hollub also says she sees a long-term strategic advantage. "Ultimately, there will be a carbon price," she told me in an interview at the company's Houston headquarters.

A carbon price is just one way to manage the boom that struck the Permian. And whether you see the boom as a testament to human ingenuity, a threat to civilization or maybe a little of both, it needs to be managed. □

World

THE TIES THAT BIND

**Syrian women in Germany are embracing
new lives, but at a cost**

BY ARYN BAKER/XANTEN, GERMANY

*Rasha with her
daughter Carina in
a refugee camp in
Bergedorf, a suburb
of Hamburg*

PHOTOGRAPHS BY NANNA HEITMANN FOR TIME



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WHEN AYA, A 23-YEAR-OLD SYRIAN REFUGEE living in the west German town of Xanten, came home from her language lessons one afternoon in October, the house was in disarray. A frantic search revealed that her 2-year-old son's stroller was missing, along with their passports and IDs. She tried her husband; his phone was off. A few hours later Aya received a telephone call from Syria. "Go pack your bags," her husband's brother told her. "Mohammad is taking Joud to Syria, and he wants you to go with them."

The instructions were simple. If she wanted to be with her son, she would have to retrace the path she and her husband had taken more than three years ago, when they sought refuge in Europe. Instead, Aya called the police. Her son, after all, had been born in Germany. Her time in the country had taught her that she had rights.

But it was too late. The police said her husband and son had taken a plane to Greece that morning. Her brother-in-law filled in the rest: as soon as they arrived, a smuggler took them across the border to Turkey, and they were now headed to Syria. A few days later, a series of text messages jolted Aya out of her grief. "If you want your son, you have to come back to us," her husband wrote from his hometown of Idlib, where a unsteady truce held between the two sides in the war. "You are becoming German. Come back to your culture, your religion and your people. Come be a good mother again."

In just a few messages, Mohammad laid out a central preoccupation for many Syrian refugees in Germany: how to embrace the freedoms of their new home while preserving the culture and traditions of the one they left behind. It has been three years since the first big wave of Syrian refugees arrived in Germany. Now that they are over the initial shock of dislocation, their focus is on building their lives anew. Some have managed to take the best from both worlds. Many others struggle, fearful that in becoming

World

German, they will lose their Syrian identity. But if they don't adopt some German ways, they risk isolation from the jobs and activities that can help them flourish.

"Traditions and community are good for psychological health. But if you are stuck too much in the home culture, it can make it difficult to integrate here," says Mona Bünnemann, a clinical psychologist who works with refugees in the city of Bielefeld, near Xanten. German culture emphasizes individual freedoms that are often at odds with societies that cherish extended family ties and the responsibilities that come with them. Unlike previous waves of immigrants who came in search of jobs and were better prepared to adapt to their host country, the recent cohort of Syrian refugees had little choice about leaving home or even where they ended up. For some, the requirement to learn German and embrace German values can feel like an imposition rather than an opportunity, especially when those values come into conflict with Syrian customs.

One of the biggest areas of stress, Bünnemann says, is the role of women in society. Recently she has started to see an increase in marital tensions. "The women are revolting more often. Now that they are not merely surviving anymore, they observe the society around them. They get to know German families and want to have the same freedoms." Some are so determined to assert their new rights that if they don't get them, they ask for a divorce.

When Aya and Mohammad arrived in Germany in September 2015, they had been married only a month. Life in the refugee camp was tough, and Mohammad often took out his frustrations on his wife. "People heard me screaming," says Aya, who asked that she and her husband be identified only by their first names in order to protect her son. "But no one said anything because in our society, it's not anyone's business that a man beats his wife." The beatings stopped when Mohammad and Aya enrolled in mandatory German-language and integration courses. Aya learned about women's rights in Germany, and Mohammad learned that beating his wife was illegal. Their son was born a year later.

Aya, a top architecture student back in Syria, flourished in her German classes, but Mohammad struggled and soon grew jealous of his wife's progress. "Aya



Aya sits in the bedroom where her 2-year-old son Joud once slept. Her husband took Joud back to Syria after she asked for a divorce

was much cleverer, and that was a problem for him," says Anna Pieper, a volunteer for the Caritas aid organization who helped the couple settle in. Soon Aya was handling all the German paperwork for the family, she says, and Mohammad felt that undermined his role as man of the house. The more Aya made friends with fellow students and German mothers in her son's playgroup, the more Mohammad retreated into the traditional Syrian community centered at a nearby mosque, where he found men who shared his anger and his struggle to find work.

Mohammad resented Aya's demands that he help out with the household chores while she continued her German studies. "He wanted to live in the Syrian way, but I wanted a new life here in Germany." She switches from Arabic to nearly accent-free German to continue: "I love it here. He doesn't."

They argued so much, Aya says, that living together became intolerable. Upon encouragement from a friend, Aya did something she never would have done in Syria. She asked Mohammad for a divorce.

"I felt like I had rights as a woman, and I didn't care about what Syrian culture and society said," she says of the shame that divorce carries back home. It was two weeks later that Mohammad returned to Syria. The only way Aya could get Joud back, he texted, would be if she tore up her asylum papers in front of him.

INTEGRATION WAS at the cornerstone of German Chancellor Angela Merkel's decision to accept nearly 1 million refugees in 2015 and 2016. The newcomers—about half of them Syrians—were expected to learn German and eventually find jobs. In part, this was to ease German voters' fears that they would be a drain on the economy, as well as to avoid the ghettoization suffered by earlier waves of migrants from Turkey and the Balkans. But cultural integration was never so clearly defined.

"At the beginning, everyone was so enthusiastic," says Pieper, who helped settle some of the hundreds of Syrian families who arrived in Xanten in 2015. "But now Germans are coming to terms with what integration means, and it's a lot



*Oula Shaoud, a 35-year-old single mother of four children,
in her kitchen in Anröchte, Germany*

more complicated.” As the initial support cooled, the far-right AfD party has tapped into anti-immigrant sentiment, entering parliament for the first time in 2017. Under pressure, Merkel announced in October that she wouldn’t stand for another term.

To many Syrian men and women, the word *integration* is tied to the loss of a deeply cherished sense of cultural identity. “Becoming German means losing my Syrian values and traditions,” says Rasha, 32, who arrived with her family from Aleppo in 2016. Despite her husband’s encouraging her to remove her headscarf, she says she is not ready—comparing it to going out in public naked.

Rasha’s husband Ghassan says things would be different in Syria, where extended families provide a safety net. He wants her to learn German and find a job to contribute to the household income. “Why should my wife not be strong and independent? What if something happens to me? She should be able to work.”

But Rasha, who married Ghassan when she was 14 and now has five children, knows nothing about working outside

the home. “No one, aside from my husband, is asking me to change anything,” she says. “We already lost our home. Our values are what keep us linked to our society and culture. They are all we have left.”

The challenge, not only to refugees but also to any first-generation immigrants, is that values can double as barriers. The Syrian gossip network is rife with criticism of refugee parents who allow their teenage daughters to spend time with boys, or divorcees and widows who start dating men—especially German men. “The day people found out I was seeing a German, I lost all my Syrian friends,” says Oula Shaoud, a 35-year-old single mother from Tartus. She has found companionship, but she has also lost her final tie to her homeland—her community. “I feel so isolated now,” she says, still not sure she made the right choice.

Bünnemann, the psychologist, says that dilemma frequently comes up in her work. Having a social support network is vital for refugees’ emotional stability, she says, but the challenge arises when personal needs—to leave an abusive

relationship, to claim independence, to date—conflict with cultural norms. “I do get why someone would not want to offend the only network he or she has.”

THE GERMAN JUSTICE SYSTEM has laid kidnapping charges against Mohammad, and if he ever returns to the European Union, he will be arrested. Although Joud was born in Germany, the government considers him a citizen of Syria, where its police have no jurisdiction. If Aya returns to Syria to search for her son, she will forfeit her right to asylum in Germany.

Pieper says the only hope is that Mohammad will realize his child will have more opportunities in Germany and let him come back. Aya thinks that’s unlikely. “Mohammad is afraid of integration. He is afraid Joud will grow up German.”

That presents Aya with an agonizing choice. She misses Joud desperately and spends most of her days in his bedroom, looking at his photo albums, obsessively folding his clothes and holding his pajamas to her nose. He wore them the night before he disappeared, and they still carry some of his scent. A sister-in-law, who lives in the same family compound as Mohammad in Idlib, sends clandestine updates on Joud’s condition. Sometimes, if Mohammad is out, she helps Aya and Joud talk via video messenger, but he is too young to understand what is happening. Meanwhile, tensions in Syria are rising again as the U.S. begins pulling out its troops. News coverage of a looming battle near Idlib is giving Aya nightmares. “I left Syria because I didn’t want to have a kid in that situation, and now my son is there without me.”

After months of waiting, Aya is considering giving in to Mohammad’s demands and returning home. But the price is steep. “If I go back to Syria, I’d lose everything I learned in Germany,” she says, scrolling through photos of her life in exile on her phone. Even if she got divorced and managed to keep Joud, it would be impossible to continue her architecture studies as a single mother. “I will lose myself back in Syria. I will lose my rights, my asylum and my education. Everything.” She pauses on a photo of her son at his second birthday party, in September, and blinks back tears. “Joud is more important than any of this.”

—With reporting by ABEER ALBADAWI/XANTEN

Family Planning

*Medical advances and
new approaches are changing the
way we think about fertility*

A NEW WAY
TO BECOME A
BIOLOGICAL
PARENT

BY ALICE
PARK
PAGE 34

AMERICA'S
FIRST UTERUS
TRANSPLANT

BY ALEXANDRA
SIFFERLIN
PAGE 38

THE SILENCE
SURROUNDING
MALE
INFERTILITY

BY MANDY
OAKLANDER
PAGE 40

WHEN DNA
REVEALS A
LONG-KEPT
SECRET

BY DANI
SHAPIRO
PAGE 42

A HAPPY, FULL
LIFE WITHOUT
CHILDREN

BY STEPHANIE
ZACHAREK
PAGE 44



*In November 2017, the
first baby born in the
U.S. to a mom with a
transplanted uterus
was delivered at Baylor
University Medical
Center in Dallas*



The next frontier in fertility treatments

AN EXPERIMENTAL
PROCEDURE
COULD HELP
MORE COUPLES
CONCEIVE
HEALTHY BABIES.
BUT IT'S NOT
ALLOWED IN
THE U.S.

BY ALICE PARK

WHEN NOAH SHULMAN WAS born a few days after Christmas 2016, his parents Kristelle and Evan had no reason to worry about him. The pregnancy went smoothly, and so did the birth.

But within a few days of taking his first breath, Noah began to struggle. He wasn't feeding, so he started losing weight. He was also lethargic. Several pediatricians reassured the Shulmans that they were probably just overly sensitive to Noah's symptoms because Kristelle is a nurse and Evan is a physician assistant—a case of first-time-parent-white-coat syndrome. “They kind of dismissed us as neurotic parents,” says Evan.

But when Noah strained to breathe, the alarmed Shulmans took him to the emergency room, and he spent the next few months in the hospital. After a harrowing month of medical emergencies that included seizures and a heart attack, the Shulmans learned that their son had a rare genetic disease that affected his mitochondria.

About 1 in 4,000 people worldwide—20,000 in the U.S.—have mitochondrial diseases. Mitochondria are present in nearly every cell in the human body, and they provide energy for everything cells do, acting as the body's molecular batteries. They also have their own DNA, and mutations can cause hearing loss, diabetes, muscle weakness, seizures and heart problems. There are no treatments for mitochondrial disorders, as it's not yet possible to repair or alter the affected mitochondrial genes using gene therapy. Three months after he was born, Noah passed away.

As they tried to accept their son's death, the Shulmans were dealt another emotional blow. Their doctors bluntly told them that they should not expect to have a healthy biological child; because of the way mitochondrial mutations occur, each pregnancy would be like playing a game of reproductive roulette, the variable being how severely affected their baby would be. “They gave us a blank stare and very matter-of-factly told us there was really no way we would have another biological child,” says Evan. They were advised to consider adopting or using donor eggs.

While they explored these options, they weren't ready to give up on having biological children. “We knew right away that we wanted another child,” says

Kristelle. “After meeting Noah, having our own child and holding him—it's a different feeling, an emotional bond and connection.”

That's when they learned about mitochondrial replacement therapy (MRT), a promising innovation in fertility treatments that could allow couples like the Shulmans to have healthy children. It involves replacing just the mutated mitochondria with healthy mitochondrial DNA from a donor, while keeping the biological mother's and father's DNA intact. In vitro fertilization (IVF), which traditionally combines genetic material from two people, is taken a step further by introducing a small amount of DNA, from the mitochondria, from a third.

“We are breaking down a barrier that has certainly never been crossed before,” says Dr. Michio Hirano, medical director of the laboratory of molecular genetics at Columbia University, who plans to perform MRT for the Shulmans as part of a study. “Clearly biologically the embryo or person generated has three different sources of DNA, and that's a unique or novel concept.”

Scientists like Hirano and families like the Shulmans are far more comfortable with that than are policymakers. Where scientists and families see a desperately needed strategy for having a baby, ethicists and lawmakers see sticky questions of how to define parental rights and whether permanently rewriting someone's genetic code is morally acceptable. Genetic treatments are currently being tested to treat cancer and other diseases because those tweaks affect only the individual receiving the therapy. But scientists face much stricter rules when it comes to studies involving altering eggs, sperm or embryos, given that those modifications can be passed on to future generations, and ethicists and lawmakers are not ready to accept the social implications of such a scientific leap.

MRT is considered a form of genetic editing. In the same way IVF redefined reproduction when it moved fertilization from the womb to the lab in 1978, MRT—and, more broadly, the new era of gene-altered embryos it represents—is pushing the boundaries of human reproduction. Despite the concerns it raises, researchers say, the technology is worth pursuing because broader understanding of mitochondria themselves can lead to new solutions for infertility that may benefit even people not affected by mitochondrial diseases. There is evidence, for example, that reactivating mitochondria could improve the quality and function of aging eggs. That could increase pregnancy rates for the nearly 80% of older women who struggle to produce healthy enough eggs to conceive using IVF.

“We're really changing the landscape of opportunity for people to have a baby,” says Jonathan Tilly, the chair of the biology department at Northeastern University, who is pioneering that work.



IT WASN'T UNTIL NOAH became sick that the Shulmans learned about mitochondrial diseases and how this suite of conditions is often passed from mothers to their children, because the embryo generally keeps the egg's mitochondria and just a tiny bit of the sperm's. Once Noah was diagnosed, Kristelle got genetically tested and learned that 70% to 80% of her mitochondria were mutated, although she does not experience any symptoms.

Each egg contains anywhere from hundreds of thousands to a million mitochondria—no one has really counted exactly how many—and each, researchers have only recently found, has a different function in the cell. While the cell's long strand of DNA is wound tightly into its nucleus, a mitochondrion—which is a separate organelle that lives inside the cell—has its own DNA made up of 37 genes. The number and type of mutations affecting the mitochondria produce varying effects on cells, which can lead to a range of unpredictable symptoms.

"The biggest problem with women with mitochondrial disease is that there is no way of knowing what level of mutation their child will have," says Mary Herbert, professor of reproductive biology at Newcastle University in the U.K., who is leading a program to test MRT among people who are affected. "A woman could produce eggs with a widely variable mutation load, so she could have a perfectly healthy child, or she could have a severely affected child; it's impossible to tell."

One way to control that unpredictability is to use IVF and screen embryos with pre-implantation genetic diagnosis (PGD), which is commonly used to detect a number of genetic diseases, including Down syndrome and muscular dystrophy. In those cases, technicians can remove a single cell from a days-old embryo and analyze its DNA for the amount of

mutations it carries. The same strategy can be applied to mitochondrial DNA, and doctors would transplant only those embryos with less than 18% to 20% mitochondrial mutations, which they believe won't contribute to debilitating symptoms. While mitochondrial PGD is available in the U.K. and other countries, it's available only in research studies in the U.S., so the Shulmans have turned to PGD programs overseas for that screening.

PGD can only reduce the risk of mitochondrial disease in the next generation, while MRT, because it introduces healthy mitochondria from a donor, can eliminate it, so the Shulmans have also decided to try MRT—or least as much of the process as U.S. law currently allows. Not only does federal policy prevent scientists from using government money for research on human embryos that would result in their harm or destruction, but Congress also prohibits the Food and Drug Administration, which evaluates new therapies like MRT, from even accepting applications to consider approving the procedure. That's why Hirano found private funding for his study, which the Shulmans and five other couples have joined. Even so, he can only perform MRT; he cannot transfer the embryos for pregnancy. They remain frozen until policies change. "Right now we are in suspension with these embryos," he says. "We can't move forward until we have permission to move forward."

Dieter Egli, a developmental cell biologist at Columbia and an expert on manipulating the DNA inside eggs, is performing the genetic swaps. He removes the DNA from a donor egg that has healthy mitochondria and replaces it with DNA from the egg nucleus of the woman affected by mitochondrial disease. The resulting egg, containing the affected woman's DNA and the donor's nonmutated mitochondria, can be fertilized by the father's sperm and produce a

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Evan and Kristelle Shulman hope to have another baby after losing their son to a mitochondrial disease

child who will be more than likely spared from mitochondrial disease.

The Shulmans, who are waiting for an egg donor to create their MRT embryos, understand why the idea of creating embryos that are genetically different from combining parents' egg and sperm causes some people concern. Altering genes in eggs, sperm or embryos can theoretically make it possible for parents-to-be to pick and choose the traits they value and want to see in their children—from physical features like eye color or height, to more complex characteristics like intelligence or athletic ability. But the Shulmans hope that studies like the one in which they are participating will help people better understand how lifesaving such genetic intervention can be, and appreciate what MRT is—and what it isn't.

"People have all kinds of crazy reasons for opposing this," says Evan. "They are afraid that we are creating designer babies, but that's a failure of people to understand that this is not about creating what we want, but purely about removing a fatal disease that is devastating to so many people."

For families affected by mitochondrial diseases, that's the only moral imperative—their right to use every option available to have their own healthy children. Shelley Beverley, a psychologist in Tasmania, Australia, who has mitochondrial disease, says she desperately wants her own biological child as a biological legacy in case the disease claims her life early, as it did with her brother and her mother. "I really want a child with my genes and my husband's genes, because if anything were to happen to me, I'd like my husband to look at our child and think, You remind me of your mom, you've got her eyes," she says. "We don't want a designer baby, we don't want to play God. We just want to get the healthiest child we can."

The Beverleys tried PGD, but after five cycles of IVF they learned their embryos were too heavily affected by mitochondrial mutations and were not good candidates for transferring for pregnancy. "We're running out of options," she says. "MRT is the only option for us to reduce that risk."

But as in the U.S., MRT is not approved in Australia—yet. Last summer, however, one of the country's Senate committees held hearings to debate whether MRT should be allowed, and invited families affected by mitochondrial diseases to make their case. After the testimony, the committee issued a report supporting research on MRT under the strict condition that it be used to help people like Beverley conceive a healthy child. If legislation passes, Australia could be only the second country to approve MRT. In 2015 the U.K. became the first, and last year researchers began a study using MRT to help two people affected by the disease have healthy babies. The team conducting the study, including Herbert, is proceeding carefully to protect the privacy of the participants and to ensure the results are properly

presented in a scientific publication so doctors can learn from the cases. They plan to expand the study to couples from other countries, but are currently accepting only those from the U.K. so they can follow the babies closely after they are born.

They have reason to be cautious. In 2016, Dr. John Zhang, an infertility specialist in New York City, reported the birth of the first-ever baby, a boy, born using MRT, in Mexico, and that was followed by others, including in Ukraine. But because those were individual case studies and not part of a rigorous trial, questions remain about how effective and safe the procedure is. One concern relates to how precisely the technician can remove just the affected mother's nuclear DNA from the tiny egg, and how much of her mutated mitochondrial DNA might carry over unintentionally into the donor egg; in a study published in 2017, Zhang said it ranged from undetectable levels to 9% in the baby's different tissues. Zhang says he plans to follow up periodically with the boy until he reaches age 18 to assess what effect, if any, the donated mitochondria has on his health.

The Shulmans, and the other couples in Hirano's study, realize that for them to get pregnant, U.S. law would have to change. That's a long shot given that any effort to study human embryos in this country tends to get caught up in the abortion debate's questions about whether embryos are considered human beings who have a right to life as well as a say in whether they should be subjects of experimental studies. Traditionally, says Josephine Johnston, an ethicist and director of research at the Hastings Center, a bioethics research institute, "The starting position of the federal government has been that we're not going to do research on human embryos—we won't fund it and we won't condone it."

Many researchers argue that universal dismissal of any research involving genetic alteration of human embryos, like MRT, closes off valuable work that could lead to treatments for diseases. But they also acknowledge that some fast-moving scientists overseas, who are already introducing permanent genetic changes in embryos, may be going too far, as it's not yet clear how safe and effective these interventions are. In November, a Chinese bioengineer alarmed both the scientific community and the public when he announced he had used a powerful but still untested gene-editing tool called CRISPR to introduce a genetic change in twin girls when they were embryos to make them resistant to HIV infection. CRISPR's developers noted that the long-term implications of editing the human genome aren't known, and stood by their previous call for a voluntary moratorium on work on genetically editing human embryos that will be transferred for pregnancy.

Even in the U.K., MRT is allowed only under strictly regulated conditions. And before making its decision, the government invited public debate

about the benefits and risks of the therapy and, as in Australia, heard from families affected by the disease. It also didn't greenlight any and all requests to perform the procedure but issued a license only to the group at Newcastle University, which will collect data from the study and report the results so the rest of the medical community can learn from their experience.

ONE PERSON SUPPORTING that stepwise, methodical approach is Tilly of Northeastern University, who is hoping to turn better understanding of how mitochondria function into new infertility treatments that would benefit more than just women affected by mitochondrial diseases. In 2012 Tilly shattered a long-held truth about female fertility—that women do not make new eggs but are born with their lifetime's supply. He found a population of egg stem cells, or precursors to mature eggs, which in the lab he showed can indeed produce new eggs, theoretically throughout a woman's lifetime. What these egg stem cells need, however, is the right set of signals that are active early in life but tend to shut down with age.

But it's not sufficient to have enough eggs; they also need to be of good quality. Tilly found mitochondria are critical for producing viable eggs. In early work in mice, and in human cells in the lab, Tilly is showing that by reactivating these mitochondria using hormones, among other things, the egg's functions can be restored and, in the case of the animals, produce embryos that can develop into healthy pups.

The results weren't exactly accepted by either the scientific community or the public at first, although several independent groups have since confirmed his findings. For some ethicists, Tilly's work leads to a slippery slope toward reproduction on demand, because it would make it possible for women to delay menopause if their ovaries are able to continue producing new eggs that could then be fertilized and carried to term. But he maintains, "We're not trying to make a 40-year-old egg look like a 20-year-old egg. There's no reason to do that. But we want to make sure that the 40-year-old egg uses everything at its disposal so we can do all we can to help women who can't have a baby, to have a baby."

He'll have to wait for more studies to see whether those effects also appear in people. But like the Shulmans, he believes that time will have been well spent if it leads to new ways for people to have families. Kristelle and Evan continue to hope for more children and take solace in the fact that Noah's life, and their participation in the study, could benefit not just them but also others like them in coming years. "Even if it doesn't work out for us now, we hope one day it will for everyone affected by mitochondrial diseases," says Kristelle. □

**'THIS IS NOT ABOUT
CREATING WHAT WE
WANT, BUT PURELY
ABOUT REMOVING A
FATAL DISEASE THAT
IS DEVASTATING TO SO
MANY PEOPLE.'**
—EVAN SHULMAN

When AI meets IVF

For a woman undergoing in vitro fertilization (IVF), the most common type of artificial reproductive technology, each cycle can cost around \$12,000. Once she's over the age of 35, her chances of delivering a single full-term baby of normal birth weight with IVF are less than 20% per cycle—meaning both the financial and the emotional costs can be significant.

It makes sense, then, that doctors are seeking ways to improve outcomes. Increasingly, they're looking to artificial intelligence (AI), an area of computer science in which machines learn to complete complex tasks and adapt their performance based on past results.

One possible application of this technology is selecting the best embryos to transfer. Last year, Dr. Nikica Zaninovic, an embryologist at Weill Cornell Medicine in New York City, co-authored a study in which an AI system was shown tens of thousands of images of embryos and told which ones resulted in a live birth. Then, looking at images of transferred embryos, it was able to correctly guess their viability more than 70% of the time.

Zaninovic doesn't think AI will replace doctors but says it will play a significant role in medicine in the

future. While AI can process and learn from millions of data points, he explains, "Human beings have limitations."

Zaninovic says the next step is to conduct a study in which an embryologist selects embryos to transfer for one group of women and AI selects for another and they compare the results. Meanwhile, other researchers are working on similar applications. Australian startup Life Whisperer last year partnered with a U.S. IVF provider to test "AI-driven image analysis" technology it says can instantly assess embryo viability. Another AI-based system, Ivy, is being tested in Australia.

Dr. Jessica Spencer, director of the department of reproductive endocrinology and infertility at the Emory University School of Medicine, sees even more potential for AI in this field. One day, she says, it could help doctors assess a couple's infertility risk, or suggest a protocol for a woman planning to do IVF. Doctors currently consider factors like age and hormone levels but don't have algorithms to guide them.

"That's what we do in our brains," Spencer says, "but it's probably not done in as smart and precise a way as a computer could do it."

—Jamie Ducharme

The miracle birth that made history

ON AN AFTERNOON IN NOVEMBER, A couple hosted a birthday party for their 1-year-old son. As family and friends gathered around the child to sing “Happy Birthday,” his parents addressed a milestone that reached well beyond the room.

“It was emotional,” recalls the mother. “It took a lot more than a nine-month pregnancy to get him, and we wouldn’t be where we are without everyone’s support.”

Many parents will tell you their child is miraculous. But the mere existence of this particular boy, who just a month earlier had taken his first steps, brings the miracle somehow closer to literal—and not just for this family. The boy’s birth was historic, the first time a baby had been born from a transplanted uterus in the U.S., and offered hope to women around the world who thought they’d never carry a child.

“We didn’t just do this for our family. We did this for families down the road,” the mother says.

When she was 16, the now-mother visited her doctor, concerned that she hadn’t gotten her period. It was during that first gynecological exam that her physician gave her a diagnosis she felt ill-equipped to handle as a teenager: she was among the 1 in 4,500 women worldwide with Mayer-Rokitansky-Küster-Hauser (MRKH) syndrome, which means she was born without a uterus. Though she had functioning ovaries, there was no way she could get pregnant or carry a baby. (The couple asked that their identities not be revealed in order to protect their privacy.)

“Even at the time, I asked about the possibility of the transplant,” she says. “I was told that wasn’t possible.” Years passed, and the woman met a man and fell in love. She found the right moment to nervously share her secret with him, something she had gone her entire life without anyone but her immediate family knowing. Would he still want to be with her if she could never get pregnant? He said yes.

They married, and soon began getting the predictable question from friends: “When are you going to start a family?” The couple wanted kids, badly, and it stung knowing that despite being young and healthy, they’d not experience a pregnancy together. The woman became depressed and started seeing a therapist. About a year into her sessions, the therapist passed her a news article: hospitals in the U.S. were launching uterus-transplant trials.

THOUSANDS OF
WOMEN AROUND
THE WORLD ARE
BORN WITHOUT
A UTERUS. A
TRANSPLANT IN
TEXAS OFFERS
THEM HOPE

BY ALEXANDRA
SIFFERLIN

IN 2014, doctors at Sahlgrenska University Hospital in Gothenburg, Sweden, became the first medical team to attempt to transplant uteruses from living donors into other women so they could give birth. The nine recipients, all in their 30s, had been born without a uterus or had had theirs removed because of cervical cancer. The trial resulted in eight births.

Transplant doctors around the world paid attention, including Dr. Giuliano Testa, chief of abdominal transplantation at Baylor University Medical Center in Dallas. After hearing a presentation about the procedure, he knew it was something he wanted to try. “Going from organs that save lives to one that produces lives is simply fascinating to me,” he says.

Transplant and reproductive-health experts considered the Swedish trial to be a triumph, but unless it could be replicated elsewhere, it might as well be considered a fluke. “We have to collaborate and share our knowledge,” says Dr. Liza Johannesson, an ob-gyn and uterus-transplant surgeon on the Swedish team, who moved to Texas to help Baylor’s program. “If no one can repeat it, it’s not worth anything.”

Testa recruited a team of physicians at Baylor for a uterus-transplant clinical trial—experts in transplants, obstetrics, fertility and psychology—and they sent a call out for female volunteers without a uterus who would be willing to undergo a major surgery for a chance to have a biological child. They also recruited women who would be willing to donate their healthy uteruses for the transplants. “When you donate a kidney, you do it to help someone live longer and get off dialysis,” Testa says. “For these women, they are donating an experience.”

In September 2016, the hospital performed its first four transplants in a period of two weeks but had to remove three of them after tests determined the organs were not receiving normal blood flow. “I am not ashamed of being remembered as the guy who did four in the beginning and three failed,” Testa said at the time. “I am going to make this work.”

It wouldn’t be long before he made good on that vow, when, in November 2017, the woman whose transplant was successful gave birth to that first U.S. baby via C-section. “The cliché is that you never know how much you can love someone until you have this baby in your arms,” says the mother. “It has opened my eyes to a whole new world—to how deeply I can love.”

Dr. Robert T. Gunby Jr., the ob-gyn who delivered the baby, had performed nearly 7,000 births in his more than two decades at Baylor, but for the first time in years, he was overcome with emotion. “When I started my career, we didn’t even have sonograms,” he says. “Now we are putting in uteruses from someone else and getting a baby.”

The mother received her transplant from a registered nurse named Taylor Siler, who had seen a segment about the Baylor program on the news.

Siler and her husband had two kids already, and she wanted to offer someone else a chance at motherhood. “I just think that if we can give more people that option, that’s an awesome thing,” she says.

Donors like Siler undergo an extensive physical and mental-health screening process before getting approval for the trial. For those who are selected, it typically takes about five hours for doctors to remove the uterus, and recovery is about 12 weeks.

Once a woman in the trial has received the transplant, in a surgery that takes another five hours, she waits to recover and achieve menstruation, usually about four to six weeks later. If her transplant is successful, she can attempt in vitro fertilization (IVF) three to six months after the surgery. The women in the trial have functioning ovaries, but attaching them and fallopian tubes to the uterus would further complicate what is already a delicate process. Because implants can increase infection risk, and the drugs the women must take daily to prevent their immune systems from rejecting the new organ are potent, the transplants are removed at some point after the birth.

Siler and the woman who received her uterus exchanged letters on the day of the surgery, and the woman sent Siler another one when she was pregnant. They first met a few weeks after the baby’s birth, and their families have since become close.

Compared with other transplants that he regularly performs, like liver or kidney, after which surgeons know within minutes if the organ is working, Testa says waiting through the pregnancy after the uterus transplant felt excruciating. “I was already nervous when my wife was pregnant, and this felt worse, like it was my pregnancy,” Testa says.

BAYLOR WASN’T THE FIRST U.S. hospital to attempt a uterus transplant. In February 2016, the Cleveland Clinic in Ohio achieved that distinction, using an organ from a deceased donor. Less than two weeks after the transplant, the woman got an infection and the uterus had to be removed. The clinic paused its program but has restarted it and completed a second transplant. The recipient is healthy, though the hospital is not providing further details.

Other hospitals in the U.S., including Penn Medicine in Philadelphia and Brigham and Women’s Hospital in Boston, are exploring similar trials, and hospitals worldwide are also experimenting with the procedure. In December 2018 it was announced that the first baby born from a uterus from a deceased donor had been delivered earlier in the year in Brazil.

To date, more than 400 women have volunteered to become donors in the Baylor program, and more than 1,000 others have contacted the hospital about becoming a recipient. Of that number, 800 have completed a preliminary screening. The hospital performed 10 uterus transplants in the first phase of its trial, from both living and deceased

donors, and has begun more surgeries in the second phase, though Baylor is not saying how many. In addition to the mom of the 1-year-old, a second woman (who is also keeping her identity private) gave birth in February 2018 to a baby girl, and the other women with successful uterus transplants are in different stages of trying to get pregnant.

Uterus transplants are expensive, with Baylor’s estimate putting the cost around \$200,000, and they’re not currently covered by insurance. (Baylor is covering the cost of the transplants in the clinical trial.) There’s still a long way to go before such transplants can be offered as a standard treatment. Even then, several members of the Baylor team say, they shouldn’t be viewed as a replacement for other ap-



proaches to having kids, but rather as another option.

“I would never disregard the desire of a woman to want to experience a full pregnancy—the whole process,” says Dr. Gregory J. McKenna, a surgeon on the transplant team who says he and his wife experienced their own fertility difficulties. “Yeah, there are other solutions out there, but the intense desire to have your own children is enormous.”

Baylor will follow both newborns as part of the study for the foreseeable future. The goal is for the births to mark the beginning of a new field of infertility-treatment research, rather than to be outliers.

“It was the best feeling in the world to hear her cry for the first time, and we are blessed to have her,” says the mother who gave birth in February.

She and the mom of the first baby have become friends, talking almost every day. Sometimes they share tips like what to do when one of the babies has a fever. Other times they express disbelief.

“I just had a moment,” the second mom recently texted the first. “Can you believe we are both moms?” □

▲
The first two babies born in the U.S. to moms who received uterus transplants were delivered in November 2017, left, and February 2018 at Baylor University Medical Center

Infertility is a man's issue too

WHEN A COUPLE CAN'T CONCEIVE, IT'S NOT ALWAYS BECAUSE OF THE WOMAN. BUT MEN REALLY DON'T WANT TO TALK ABOUT IT

BY MANDY OAKLANDER

BRADLEY GOLDMAN HAS FILLED OUT a size large T-shirt his whole adult life. As a bodybuilder, he knew that a steady stream of lean, bland proteins, heavy weights and steroids would make his muscles pop.

But over the past six months, Goldman, a fitness and nutrition consultant in Los Angeles, has watched his jacked physique soften and shrink. “I cracked a couple of weeks ago, and I had to buy a shirt a whole size smaller,” he says. He tried it on for his wife Brittany, and it hung loose on his frame. “I just kind of shook my head,” he says. He knew she saw the changes too.

Goldman, now 30, began taking steroids at 18. He’d heard they could interfere with fertility—steroids can shut down the body’s natural production of testosterone—but like many young men, he was more concerned with not having babies than with having them. Now he and his wife are trying to get pregnant, and though he gave up steroids two years ago, it seems the damage is done.

When he got a semen analysis last March, his sperm count came back a flat zero. “It was earth-shattering,” he says.

He started taking fertility drugs to help his testicles recover. But three months later, he still had no sperm. He’d been injecting himself with testosterone because his body could no longer produce it naturally, but his doctor recommended he stop in order to make the fertility drugs more effective. Now his sperm count is slowly climbing, but his sex drive has withered, along with his energy and 30 pounds of muscle. He has fat in places he never had before, including his breast tissue. He’s become depressed.

On his social-media accounts, Goldman has scaled back on shirtless photos and posts more long-sleeved shots instead. But beyond confiding in his wife, he hasn’t publicly shared what’s really going on. “I have 10-plus thousand people that follow me on Instagram,” he says, “who don’t know who the f-ck I am.”

INFERTILITY IS ALMOST ALWAYS thought of as a woman’s issue, and it’s true that women bear the greater burden of it. They are the ones who ultimately either get pregnant or don’t, and regardless of which partner has the fertility problem, the woman’s body is usually the site of treatment. In vitro fertilization (IVF), for instance, often requires just a sperm

sample from men but a great deal more from their female partners: injections of synthetic hormones, blood tests, ultrasounds.

And yet up to 50% of cases in which couples can’t have babies are due in some way to men. More men are talking about it now, but it remains stigmatized, especially in the U.S. Men are largely absent from public conversation around infertility, and even those who have looked for support hesitate to identify as someone struggling with male infertility.

“I feel like I’m your stereotypical masculine-looking man,” Goldman says. “I’m tattooed. I have muscles. I work out. And I’m infertile. How many other guys out there that have this machismo, this mind-set about them, are in my shoes as well?”

Some men, like Goldman, know why they’re infertile. One of the most common causes is a varicocele; veins in the scrotum sometimes grow too big and tangle, which can make the testicle heat up and impair sperm function. This can often be fixed with surgery. Certain medications, including steroids and hair-loss drugs, are also known to affect fertility in men, as are obesity and other medical issues. Recent research suggests that age is another contributor—sperm quality, not just egg quality, decreases with time.

But many cases of male infertility are idiopathic, meaning their cause is a mystery to doctors. Genetics or other health factors might be at play, or it might be something environmental. Diet, alcohol, air pollution, stress, pesticides, compounds in plastics, even wearing briefs instead of boxers: research has implicated all of these in the potential degradation of fertility, and scientists are trying to figure out what’s most important. The matter appears to be getting more urgent. A 2017 analysis of studies, published in the journal *Human Reproduction Update*, found that among men living in Western countries, sperm count has declined more than 50% in less than 40 years.

In the three years that Dr. James Kashanian has been practicing urology at Weill Cornell Medicine in New York City, he’s noticed a shift in how men approach the issue. Couples used to assume the problem was with the woman, jumping to IVF and intrauterine insemination (IUI)—in which sperm is inserted directly into the uterus—before exploring issues with the man. “Now, physicians, patients and couples are more aware of this male factor, and they’re looking to get answers sooner,” he says.

After men leave the doctor’s office, though, they often experience raw feelings: guilt, for being the reason their partner can’t get pregnant with their biological child and for what she’ll have to go through to do so; shame, for not being able to perform the basic feat of reproduction; loneliness, because they feel like they’re the only ones in this situation.

“There’s been this idea historically that men aren’t bothered about being infertile or about reproduction or children, which isn’t true,” says Esmée Hanna,



a male-infertility researcher at De Montfort University in England. In a 2017 survey, Hanna and a team of researchers asked 41 men how infertility affected their lives; 93% said it had a negative impact on their well-being and self-esteem. The same themes kept coming up: men felt depressed, lonely, anxious about a future without children—even suicidal. Yet nearly 40% of them had not sought support.

INFERTILITY IS PRIVATE for a lot of women too. But women have options for finding a community that can relate to what they're going through, including support groups, online discussion boards and Facebook groups. Even though 12% of U.S. men ages 25 to 44 are infertile, there are few groups—in person or online—devoted to male infertility. One of the most popular men-only Facebook groups, Mens Fertility Support, doubled in size in 2017. Still, it has fewer than 1,000 members.

Andy Hansen, a 33-year-old X-ray technologist who lives outside St. Louis, is among them. In 2015, he learned he had a low sperm count due to a varicocele. His numbers went up after surgery, but after five years of trying, five rounds of IUI and IVF and two miscarriages, he and his wife remain childless. “The ‘blame’ has shifted back and forth,” he says. “We both know what it’s like to be on that end of it.”

Goldman took steroids for years, which depleted his sperm count. Now he and his wife want kids

They attended an event at their clinic hoping to meet couples in their situation, but as Hansen recalls, there were few men, if any. He tried an infertility Facebook group with over 20,000 members. “There just weren’t any guys, maybe one or two,” he says.

Finally, he found Mens Fertility Support, through which he and other men can advise one another and commiserate. “Keeping it in is just exhausting,” Hansen says. He’s noticed, however, that most members of the group are based in the U.K. In the U.S., “a guy tends to feel like he has to be the rock,” Hansen says.

“So much of masculinity in America is about being as strong, independent and capable as other men,” says Liberty Barnes, a medical sociologist and author of the 2014 book *Conceiving Masculinity: Male Infertility, Medicine, and Identity*. “If you can’t get your wife pregnant, you can’t help but compare yourself to other men and feel inferior.”

But ideas about masculinity can be surprisingly flexible in the face of infertility, Barnes says. For her book, she interviewed 24 American couples, once after the man was diagnosed with infertility, then again almost two years later. “You could see they were doing a lot of work trying to process their experience and redefine what masculinity meant to them,” Barnes says. The men emphasized their role as a good husband or their preparation to be a good father. For many, being a man meant going through every type of fertility procedure—no matter how painful—“basically to prove to their wife that I’m strong, I’m brave, I’m willing to do anything it takes.”

Goldman avoided joining the Facebook group for a month after his wife told him about it. “I was not about to share with a bunch of random dudes what I’m going through,” he says. Finally, though, he relented. When he read a post from a man whose struggles with infertility led him to consider suicide, Goldman broke down in tears. “That’s what so many men go through, and just keep their mouth shut,” he says.

Phyllis Zelkowitz, director of research in psychiatry at the Jewish General Hospital in Montreal, thinks online groups hold a lot of promise because they normalize an isolating experience. It’s hard for men to talk about these issues, she says, “because they’re out of tune with their peer group—most of the people that they know are having babies, and they’re not.” She and a team are now testing an app they developed, called Infotility, that offers men steps to take to improve their fertility as well as a message board.

Goldman posted once to the private Facebook group; beyond that, he isn’t open about his infertility on social media. But lately he’s been toying with the idea of making a YouTube series about his experience. “It doesn’t make you soft to talk about it,” he says. “It doesn’t make you less of a man.” If he can let even one other man know he’s not alone, “then putting my story out there and being vulnerable is totally worth it.” □

A family secret hidden for 54 years

MY PARENTS NEVER TOLD ME THE TRUTH ABOUT MY BIOLOGICAL FATHER. THEN I GOT THE RESULTS OF A DNA-TESTING KIT

BY DANI SHAPIRO

ONE EVENING IN THE WINTER OF 2016, my husband mentioned that he was sending away for one of those commercial DNA-testing kits. He asked if I wanted him to order me one as well. I could easily have said no. I wasn't curious about my ancestry. I knew where I came from—Eastern European Ashkenazi Jews on both my parents' sides. Instead, I said yes. Why not? It seemed like a game—like those personality tests people often take online.

The results, when I received them a few months later, changed everything I had ever understood about myself. I was only half Eastern European Ashkenazi, as it turned out. A person I had never heard of was identified as a first cousin. The truth was unavoidable. My beloved father, who died in a car accident when I was 23, had not been my biological father.

This discovery led me deep into a world I had known nothing about: the history, science and psychological underpinnings of assisted reproduction. I have spent the past few years piecing together the story of how I came to be, the truth of where (and who) I come from—and the ways in which my identity was scrupulously hidden from me.

In 1961, my parents, Orthodox Jews who married later in life, were having trouble conceiving. My father was part of a large family that took seriously the commandment to be fruitful and multiply. My mother, nearing 40, was desperate to have a child. They went to the now long-defunct Farris Institute for Parenthood near the campus of the University of Pennsylvania. There, they were told that a "treatment" was available to help solve my dad's infertility. A practice of the day was to mix donor sperm with the intended father's sperm, in order to keep alive the possibility that the child was biologically his. There was a commonly used term for this: *confused artificial insemination*.

Confused is right. Back then, the medical establishment took great pains to allow couples to believe what they wanted about what they were doing. Couples were told to have sex before and after the procedure to further the sense that the (often completely sterile) husband could be the father. Once a woman

had become pregnant, the couple might be told that her blood levels showed she must have already been pregnant when she first came to the institute, furthering the possibility that two otherwise rational people could bury the truth from their family, their friends and themselves.

The trauma and shame surrounding infertility was intense. In 1954, a court ruled that donor insemination constituted adultery on the part of the woman, whether or not the husband had granted consent. Nine years earlier, TIME ran a story about the legal status of donor-conceived children with the lacerating title ARTIFICIAL BASTARDS? Records were heavily coded, then destroyed. Sperm donors were guaranteed anonymity. It seemed fail-safe that the procedure would remain forever secret. The idea of a future in which DNA results would become easily accessible through a popular test would have been unimaginable.

Now advances in the field of assisted reproduction are also far beyond what could have been imagined at the time of my birth. In vitro fertilization, surrogacy, donor eggs, cryogenic technology and the capacity to test embryos for genetic markers have allowed many more of us—straight or gay, married or single—to make families. And that's a great thing, but it isn't a simple thing. Though science has evolved at a stunning rate, the human capacity to understand and wisely use those advances has limped along.

IF THE DESIRE
TO PROCREATE IS
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IDENTITY

THE SECRET that was kept from me for 54 years had practical effects that were both staggering and dangerous: I gave incorrect medical history to doctors all my life. It's one matter to have an awareness of a lack of knowledge—as many adoptees do—but another altogether not to know

that you don't know. When my son was an infant, he was stricken with a rare and often fatal seizure disorder. There was a possibility it was genetic. I confidently told his pediatric neurologist that there was no family history of seizures.

More difficult to quantify are the profound psychological effects of such nondisclosure and secrecy. I grew up feeling "other"—different from my family in ways I didn't understand. I looked nothing like my dad and was constantly told that I didn't "look" Jewish. I was filled with longing, but for what I did not know. The air in my childhood home was thick with the unsaid. I felt it, picked up on it, but had no name for it. The psychoanalyst Christopher Bollas has called this "the unthought known"—what we absolutely know but cannot allow ourselves to think.

We find ourselves in an interesting sliver of time. Secrets surrounding identity have existed since the start of humanity. The Old Testament is threaded through with them. People lived and died

without ever knowing the truth of themselves. But now—because of the potent combination of DNA testing and the Internet—those secrets are tumbling out. At some point in the not-too-distant future, the very idea that such secrets of identity were ever kept will seem ludicrous.

The U.S. has no laws limiting the number of offspring a sperm donor may produce, nor does it regulate anonymity. Numerous countries do restrict a donor's number of offspring, ranging from one (Taiwan) to 25 (the Netherlands). But the U.S. and Canada have sidestepped this ethically thorny territory, allowing for the possibility that half-siblings may inadvertently marry and have children.

And then there is the matter of anonymity. People donating sperm or egg (and while we're at it, *donate* is a misnomer, as the transaction usually involves payment) must now know that they cannot—they *will* not—remain anonymous forever. If the donor's brother, niece, cousin or granddaughter has submitted DNA to one of the testing sites, it makes it that much easier for him or her to be findable.

It took just 36 hours from the time I learned that my dad was not my biological father until I found the man who was. He was 78—a retired physician and medical ethicist—and I can imagine how stunned he must have been to receive my email with the subject line *Important letter*. But men and women donating their reproductive material today—listed in catalogs with cute handles (“Tall, Dark, and Handsome,” “Positive Vibes,” “Fit and Fun”)—need to think about the living consequences of their donation.

Donating sperm or eggs is not the same as donating a kidney, a retina, a liver, a heart. It carries with it something that all the science in the world can't make sense of: I'll call it the soul. I share many physical traits with my biological father—his blue eyes, fair hair, pale skin, tendency to blush; his small hands and high forehead. This would be expected. But we also share the same favorite novel: Wallace Stegner's *Crossing to Safety*. We have a similar sense of humor and natural reserve. When I met him, I understood, for the first time, where aspects of my very personhood had come from.

If the desire to procreate is one of the most powerful of human urges, so too is the desire to know our own identity. In the complex calculus of reproductive medicine, the achievement of a baby is considered the end—a success—when in fact it's just the beginning. Long-term scientifically controlled studies on the psychological and emotional effects of donor conception have not been conducted.

IN THE THREE YEARS since my discovery about my father, I have come to think of the question of disclosure like this: if a genetic connection to a child is so important, so valued, and this is the reason hopeful parents choose the donor route rather than adoption,

then the child, too, has a right to know her own origins. It's either important—in which case it's important to all concerned—or it isn't.

It's difficult to be born. It's challenging for any of us to grow up, to be a human being. Just think about middle school! The challenges only increase when we're donor-conceived. The issue is in pretending otherwise. Too often, parents of donor-conceived kids and the reproductive-medicine industry would prefer to think of the donor as necessary but inconsequential. The rights of the parents and donor are weighed and carefully considered—but not those of the person the existential transaction will produce.

And there is the fear, too, that regulation will be



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The author with her dad Paul Shapiro on the beach in Bermuda, circa 1965. She discovered at age 54 that he was not her biological father

an impediment to a portion of the reproductive industry's booming success. What will happen if sperm and egg donors are no longer permitted to be anonymous? Fewer parents may feel comfortable choosing this route, and fewer men and women may donate. If my biological father had known that a child of his would come knocking one day, he never would have donated, and I wouldn't be here at all.

There are some signs of change—with children's books on the subject and online support groups for offspring of prolific donors—but they don't go nearly far enough. While these evolving social attitudes are a positive development, they don't stand in for needed concrete policies. The children born of these technologies must be the first priority as science pushes us further into a future we can barely imagine.

Shapiro's new book, *Inheritance: A Memoir of Genealogy, Paternity, and Love*, will be published this month by Knopf

Why I'm glad I didn't have kids

I'D ALWAYS WANTED BABIES. PROBABLY. Eventually. Possibly. When I graduated from college, in the early 1980s, friends started having them while I remained happily unencumbered. Even after I married, family planning was more like having no plan, other than putting it off until later. When I reached the age when I was supposed to be desperate to be a mother—early to mid-30s—I didn't feel desperate; I only felt unsure.

My sole mistake at the time, I see now, was not trusting that I'd be O.K.—maybe even better than O.K.—with or without a baby.

Today, more and more women are choosing not to have children, and while the stigma hasn't completely lifted, it's not what it once was. But if the urge to have a child is at least to a degree biological, what does it say about you if you don't want one? At 57—a childless 57—I still meet young women who wonder why they don't want a baby more. Should they try to have one anyway? And if they don't have one, what will their lives be like? The issue is obviously even more fraught for women of childbearing age who are having trouble conceiving and are asking themselves how far they should go with it, how much they want it, if their partner wants it more than they do.

When I was in my mid-30s, my then husband and I did try, and fail, to conceive a child. I'd seen other women who wanted babies so much that they almost seemed to be erasing a part of themselves with their anxiety. Though I would have welcomed a child, their yearning seemed foreign to me. My husband and I considered our options. The invasiveness of IVF troubled us, and we didn't have that kind of money anyway. So we just decided to stop focusing on having a baby, and a baby never came.

In social situations around that time, when outsiders would nose into what I believe is private business, the fact that I had taken the path of least resistance gave me an easy out. If anyone asked why I didn't have children, I could simply say that my husband and I had tried and failed. Not only was it the truth, but it sounded less cold than “I didn't want any.”

And yet even today I rarely volunteer how utterly happy I am with the decision I made more than 20 years ago. Because I never had a child, I don't really know how to miss the experience of having one. But I do recognize all the things that

WHEN I WAS
YOUNGER, I TRIED
UNSUCCESSFULLY
TO HAVE A BABY.
I HAVE ZERO
REGRETS ABOUT
HOW THINGS
TURNED OUT

BY STEPHANIE
ZACHAREK

have come my way as the result of not having kids—and, by extension, being a woman on my own after my marriage broke up: not having children certainly made it less difficult to end the marriage when it became clear that my husband and I had to do so. In some ways, the baby I never had is a part of me. She has given me freedom.

I BEGAN MY ADULT LIFE as an almost laughably unambitious journalism graduate, doing proofreading and copyediting and whatever came my way—in fact, doing almost everything I could to avoid writing, because I figured I'd probably fail. But once I started—writing freelance album reviews for 20 bucks a pop—I couldn't be stopped. By the time I had actually launched any sort of part-time writing career, the do-or-die baby-making years were upon me.

At that point, I realize now, my anxiety was highest—so high that it may very well be the reason I couldn't conceive. My husband was a freelance writer. I had a full-time job as a magazine copy editor; whatever writing I was doing was happening



on the side. People knew we were broke, and still, so many of them said, “Let it happen, you’ll figure it all out later.”

But what would that mean, exactly, when the writing I was doing was already in the margins of my life? I knew women who had babies and careers—of course, it was possible. Maybe I could be one of those superwomen—getting up early, working all day, taking care of the kid before and after day care, confining my writing to the hours after 10 p.m.—but when I looked at this future, I felt depressed in advance.

No matter how helpful my partner promised to be, I knew the bulk of the responsibility often falls to the woman. I also knew that the world didn’t really need extra writers, and I could see myself being too exhausted to put in that additional labor. Who’d really miss my review of the latest REM record? Another, more amazing woman might have gone for it all, but I didn’t feel amazing, not in that way. I had finally found the thing that I loved doing, and now I had to make room for something else—someone else—and that would supposedly make my life complete?

ILLUSTRATION BY CHIARA ZARMATI FOR TIME

I COULD SAY YES

TO ALMOST

ANYTHING

I WANTED TO DO ...

AND WITH EVERY

YES, MY WORLD

GOT A LITTLE

BIGGER

Maybe I knew even then that the idea of completeness is dangerous. I doubt there’s any such thing in a life. By choosing openness over some false idea of completeness, I’ve had more enriching work than I ever imagined. My job—these days, as a movie critic—is immensely satisfying, but it’s that much more so because of the freedom I have. Sometimes I go to festivals simply to cover them—and the ability to just go shouldn’t be underestimated—but I have also been invited to run writing workshops and to serve on juries all over the world.

I occasionally wonder if my not having children has made me open to experience in ways I might not otherwise be. That’s not to suggest that women with children can’t be equally open. But caring for a child demands a specific focus, for years at a stretch. My runway of opportunity was a straight shot, for weeks, months and years. I could say yes to almost anything I wanted to do. Every yes meant I met a new set of people, a new set of friends. And with every yes, my world got a little bigger.

I HAVE NEVER given life to another person. But I’m amazed and grateful, daily, at how much life has come my way even so. I have friends of all ages. I’ve had incredible romances and some concomitant heartbreak. I’ve taken pleasure in watching several of my nieces and nephews start families of their own. And I’m not immune to the desire to care for other living creatures: right after my marriage broke up, I moved to a strange new neighborhood and discovered a minicolony of feral cats in my front yard. They soon became my little outdoor family.

So many accounts of lives without children—lives like mine—are met with reactions like, “How sad! This is all she’s got?” But to paraphrase John Wayne in one of my favorite movies, Howard Hawks’ *Rio Bravo*, that ain’t all I got, it’s what I got. It’s so hard, when you’re young and most of your life is before you, to make the distinction between what you think you should want, and what you really do want. In my baby-making years, people would say to me, “If you don’t have them, you’ll regret it.” I can’t say I’ve ever felt anything like regret, at least in the sense that they meant. To have no regrets means we experienced everything just as we’d planned, that we made the correct decisions at every juncture. No matter what Edith Piaf tells us, no one gets through life like that.

What I want to say to younger women who believe that a child-free life is an unfulfilled life is that your future self is a person you haven’t met yet. Don’t presume to know everything about her in advance. And don’t presume that you can control every element of your life just by making choices. Because sometimes even the choices you make by default can bring great happiness—just not the sort you envisioned. □



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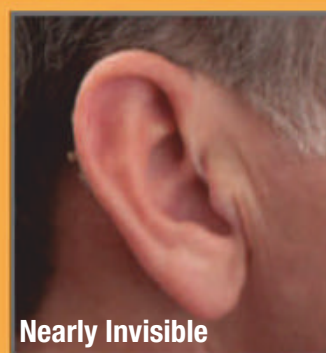
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TimeOff

MINING FOR GOLD

After a year when all kinds of films seemed award-worthy, Oscar season is now open season

INSIDE

SEX ED GETS A VERY MODERN TREATMENT ON NETFLIX

UFOS COME INTO FOCUS IN A SPOOKY NEW SERIES

AN ARRAY OF SELF-HELP BOOKS TO KICK OFF 2019 RIGHT

ILLUSTRATION BY CHRIS GASH FOR TIME

TimeOff Opener

MOVIES

What makes an 'Oscar movie' in 2019?

By Stephanie Zacharek

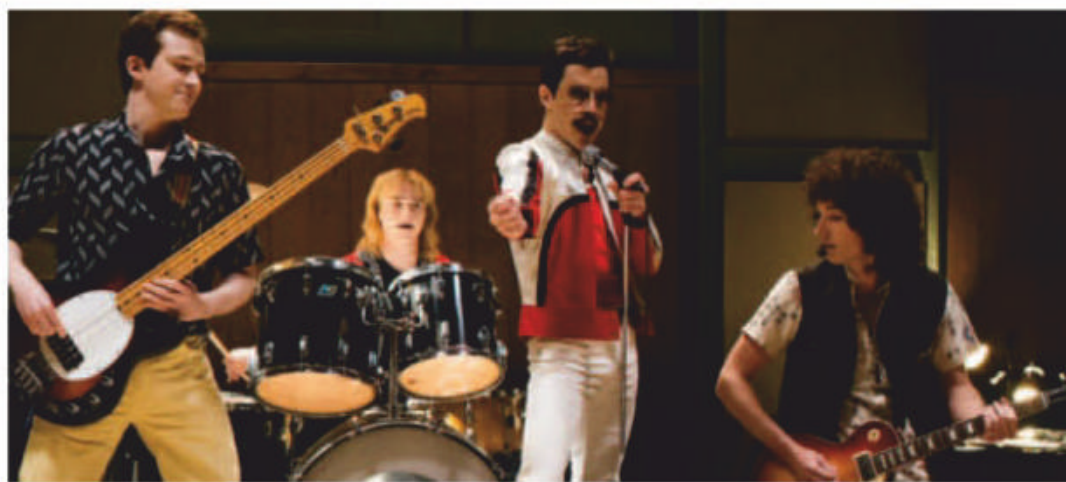
WE USED TO THINK WE KNEW AN OSCAR-worthy movie when we saw one: you could always place your Best Picture office-pool bet on a classy spectacle (*Lawrence of Arabia*) or a story that tackled a significant social issue of the day (*Kramer vs. Kramer*). When in doubt, you'd go with an extravagant crowd pleaser (*The Sound of Music*), though only in rare instances would you put money on a comedy (*Annie Hall*). A heist movie? Forget it.

But looking back at 2018, what even makes an Oscar movie an Oscar movie? Especially in a year when one of the biggest contenders may be a picture you watched at home on Netflix? If you pay attention to online Oscar pundits—handicapper types who try to predict likely winners by tracking that admittedly nebulous indicator we call “Oscar buzz”—you’ll see that the same titles keep bubbling to the top: they include Alfonso Cuarón’s deeply emotional, semiautobiographical *Roma*, which got a limited theatrical release but can also be watched on Netflix; Bradley Cooper’s audience hit *A Star Is Born*, starring Lady Gaga; and Damien Chazelle’s *First Man*, featuring Ryan Gosling as astronaut Neil Armstrong, the kind of prestige picture the Academy often takes seriously.

But wait a minute: What Academy are we talking about? The old one, circa 2015, made up largely of aging white men? Or the newer, evolving one? In 2018 the Academy of Motion Picture Arts and Sciences invited some 900 new members—including a significant percentage of women and minorities—into its ranks. Membership is now at more than 8,000, the group’s largest ever. Might this revived selection of Oscar voters have some new ideas of what constitutes an Oscar movie?

Take a picture like Peter Farrelly’s *Green Book*, based on a true story, in which a racist, working-class joe (Viggo Mortensen) learns a crucial lesson about racial equality when he drives a cultured, educated musician (Mahershala Ali) through the segregated South of the early 1960s. Early last fall, Oscar prognosticators seemed certain *Green Book* would be an awards front runner. But after the movie opened to disappointing box-office numbers, its Oscar buzz began to drain away. Some critics have found the film retrograde to the point of being racist. In reality, it’s probably just the kind of outmoded “message” film we feel we’ve outgrown, a work that spells out an antiracism lesson that most Americans don’t think they need to hear (even if some actually do).

Then there’s the case of *Widows*, a modern, grownup heist film with a nearly all-woman cast, including a dazzling Viola Davis. Directed by Steve McQueen—whose *12 Years a Slave* won Best Picture in 2014—the film earned raves from audiences and critics alike at the Toronto Film



2018 Oscar front runners ... or maybe not. Clockwise from top left: Steve McQueen’s *Widows*, Alfonso Cuarón’s *Roma*, Ryan Coogler’s *Black Panther*, Joel Edgerton’s *Boy Erased*, Peter Farrelly’s *Green Book* and Bryan Singer’s *Bohemian Rhapsody*

Festival last fall. Perhaps because McQueen has already made an Oscar-winning film, and also because *Widows* tangles with serious ideas about women’s dependence on men, some speculated that the film might be a front runner. But as of early December, its chances seemed to be fading. Its box-office numbers didn’t jibe with its early festival popularity. That shouldn’t necessarily affect Oscar odds, but movies that don’t click with the public don’t always linger in the minds of Oscar voters, either.

WHAT ABOUT box-office superhits like *Bohemian Rhapsody*, trashed by most critics but extremely popular with audiences? Or *Black Panther*, so far the top-grossing Marvel Cinematic Universe release of all, but a movie that also works, simply, as a piece of storytelling? In early August, when the Academy announced a plan to create a new Oscar



category, Outstanding Achievement in Popular Film, observers speculated—probably correctly—that the new award was created as a way to recognize a film like *Black Panther* (or *Bohemian Rhapsody*) without having to “waste” one of the more serious awards on it. By September, the Academy had scrapped the idea, although chief executive Dawn Hudson has said that the organization is still trying to figure out new ways of honoring a wider variety of films. Regardless, it seems that *Black Panther* has opened a door to more creative thinking about what an Oscar movie can be.

In fact, in the 2019 Oscar race, it may be the social-issues pictures that get left out in the cold, specifically the three serious movies about troubled young men released this year: *Boy Erased*, *Beautiful Boy* and *Ben Is Back*. Two of these films deal with drug addiction; one is about a teenager forced into conversion

therapy by his parents. The Academy—at least the one we used to know—used to gravitate toward movies about worthy subjects like these. But even if these pictures strike a nerve with moviegoers—or Academy voters—who are also parents, they blur together just a little too easily for any one to stand out.

Between prestige-laden front runners, audience-friendly wild cards and earnest pictures with classic values of family love and racial unity, defining what makes a movie Oscar-worthy has become increasingly difficult. The choices of this new, evolving Academy—one whose makeup will likely continue to shift in the coming years—may help us further redefine it for future years. Yet no matter what happens, shaking up the status quo can’t be a bad thing. And maybe some year—if not in 2019—a heist movie will have a chance at winning Best Picture. □

MOVIES

Blockbusters with big wins

Sometimes the movies audiences love best also capture the fancy of Academy members—proof, perhaps, that they’re moviegoers first and movie pros second. These box-office hits also won Best Picture at the Oscars:

TITANIC (1997)

Directed by James Cameron

This romantic historical juggernaut won 11 Oscars, a record matched only by *Ben-Hur* (1959) and *The Lord of the Rings: The Return of the King* (2003).

FORREST GUMP (1994)

Directed by Robert Zemeckis

Audiences and, apparently, Oscar voters loved Tom Hanks’ portrayal of a savant who holds the secrets of a life well lived.

GLADIATOR (2000)

Directed by Ridley Scott

An 1872 work by French painter Jean-Léon Gérôme inspired the look and mood of this crowd-pleasing Roman Empire epic.

THE LORD OF THE RINGS: THE RETURN OF THE KING (2003)

Directed by Peter Jackson

Though the first two films in the *LOTR* trilogy earned numerous nominations and won some technical awards, when it came to Best Picture gold, the third time was the charm.

CHICAGO (2002)

Directed by Rob Marshall

This film adaptation of the much revived 1970s stage hit became the first musical to win Best Picture since the 1968 *Oliver!*



TELEVISION

An old-fashioned teen sex comedy with a Gen Z twist

By Judy Berman

AS THE WORLD CHANGES, AT LEAST one fact of teenage life remains constant: the typical American high schooler is a hormone-addled mess of insecurity, naiveté and horniness. It's this truth that underlies the ever popular teen sex comedy—a genre that exploded in the 1980s with movies like *Porky's*, *The Sure Thing* and *Fast Times at Ridgemont High*, then lived on in millennial touchstones such as *American Pie* and *Superbad*. But Gen Z, the cohort marked by unprecedented sexual and gender fluidity, is coming of age under the inextricably connected influences of social media and pop-culture feminism in an era defined by #MeToo. Sex isn't as simple as it was for earlier generations of male virgins scheming to get lucky on prom night. In fact, that prototypical story is likely to read in 2019 as sexist, excessively heteronormative or even—to use a timely neologism—“rapey.”

To survive this massive cultural shift, the teen sex comedy will need to change without losing the raunchiness that made it so beloved in the first place. And it's starting to do so. Last spring saw the release of *Blockers*, an uproarious movie in which the virgins scheming to get lucky on prom night were three girls. On Jan. 11, Netflix will take the evolution a step further with *Sex Education*, a British dramedy series that casts *Hugo* star Asa Butterfield as Otis Thompson, a sweet, unassuming 16-year-old outcast whose single, free-loving sex-therapist mom Jean (Gillian Anderson) is always embarrassing him with her lack of boundaries. After watching him give some surprisingly great sex advice to a fellow student, Otis' rebellious crush Maeve (Emma Mackey) persuades him to set up his own informal therapy practice on campus and cut her in on the profits.

It's a far-fetched premise: Can you imagine anyone in high school, where gossip is a commodity and kids are



Otis (*Butterfield*) humors his embarrassing mother (*Anderson*)

desperate to look more experienced than they really are, paying to confess their sexual dysfunctions to a peer? Yet *Sex Education* earns the suspension of disbelief it requires. Populated by multidimensional characters with sympathetic problems, the show embodies—and espouses—some of TV's most progressive views on sex.

AT FIRST GLANCE, Otis' school resembles the ones in John Hughes movies, with their hierarchies of cliques and clueless faculty members. There are the mean girls (except one of them is a gay boy), the burnouts, the Warhammer nerds. But beyond those stereotypes are individuals: Maeve, who comes from a poor family and has a bad reputation, also happens to be a brilliant student. Her friend with benefits, Jackson (Kedar Williams-Stirling), is a popular jock with two moms who isn't ashamed to find himself falling for her. Otis' best friend Eric (Ncuti Gatwa, the standout among a great cast) is gay, out, proud—and bullied not for his identity but because he once got an erection during a school band performance. Even the minor characters, like a strange, over-sexed girl who draws pornographic sci-fi comics, are one of a kind.

As for Otis, he's a precocious, straitlaced sage who could use some

guidance of his own on the topic of sex: every time he tries to masturbate, he has a panic attack. It's in spite of his repression, inexperience and distaste for his mom's flamboyance that he weighs his classmates' troubles without judgment. He gets couples to talk their way through body shame, counsels lesbians without objectifying them and listens when Maeve educates him on revenge porn. The contrast between Otis' maturity and the sophomoric behavior around him provides the balance of lewd humor with healthy attitudes toward sexuality. Girls subsuming their own needs to those of their male partners—a tendency older teen sex comedies framed as the universe's gift to boys—becomes a running theme but one that's subtle enough to avoid Very Special Episode territory.

Reactionary types have often complained in recent years that younger generations' sensitivity to issues like identity, consent and trauma has narrowed the range of stories that can be told in the public sphere. *Sex Education* suggests not only that this argument is specious but that an ethos of respecting every kind of person, regardless of their differences, can take a well-worn genre like the teen sex comedy in a new direction. All it takes is characters who read as multifaceted people. □

TELEVISION

A close encounter with prestige TV in *Project Blue Book*

AFTER WORLD WAR II, AS TENSIONS with the Soviet Union fueled both the space race and fears of nuclear apocalypse, the U.S. Air Force started investigating UFOs. For help debunking the strange reports flowing in from across the country, the military enlisted J. Allen Hynek, an astronomer later known for developing the “close encounter” classification system. But over the years, Hynek grew less skeptical about UFOs and more suspicious of his bosses’ agenda, even as he remained instrumental to the 17-year study Project Blue Book.

His story is so obviously the stuff of prestige TV that it’s surprising it has taken so long to reach cable, in the form of a sci-fi drama from executive producer Robert Zemeckis that premieres on Jan. 8 on History. *Project Blue Book* smartly casts Aidan Gillen (*Game of Thrones*’ Littlefinger) as the brilliant but arrogant Hynek. Captain Michael Quinn (Michael Malarkey) is the grounded Scully to his obsessive Mulder, a World War II hero charged with overseeing Allen—and ensuring that he toes the Air Force line. Above Quinn’s pay grade, a cover-up is brewing. And

at home, Allen’s long absences have primed his wife Mimi (Laura Mennell) for a friendship with a mysterious new woman in town (Ksenia Solo).

Many great historical dramas—*Mad Men*, *Halt and Catch Fire*, *The Knick*—have been built on similar setups, following difficult visionaries who struggle against contemporary mores and authorities to shape the future we inhabit. *Project Blue Book* calls back to *The Americans* too, with Soviet spies sniffing around Allen’s classified research.

Yet this show’s inelegant writing and underdeveloped characters and themes keep it from rising to the level of greatness. The dialogue can be painful: Allen justifies Project Blue Book as a chance to “get what my heroes—Galileo, Kepler—never did: recognition in my own lifetime.” The suggestion of a common thread connecting the red scare, the trauma of war and the ’50s science-fiction craze seems promising but, in the first six episodes, never evolves into anything more than a superficial motif.

Still, *Project Blue Book* works as a paranormal procedural in the *X-Files* mold; the story moves quickly, the performances elevate the scripts and episodes strike the right balance between Allen and Quinn’s run-ins with rural eccentrics and a darker scenario that drives the season-long arc. It’s a missed opportunity, sure—but one that yields a very watchable show. —J.B.



After four seasons, TV’s meanest couple (Cash and Geere) is getting married

TELEVISION

For better or Worst, one last time

You’re the Worst premiered in 2014 with this simple premise: two awful people fall in love. Jimmy (Chris Geere) is a narcissistic writer whose only novel flopped. Self-destructive Gretchen (Aya Cash) does PR for a puckish rap crew. Their nihilistic worldviews are perfectly matched.

In the first four seasons, their love powered a dark romantic comedy that felt uniquely potent, thanks to the chemistry between Cash and Geere, but also because of creator Stephen Falk’s skill at making these monsters so relatable. Bad behavior revealed their deep scars. Gretchen and Jimmy seemed like anyone struggling to move past their chaotic 20s into true adulthood.

Following a bumpy fourth season, the show recovers in time for its final year, debuting on FXX on Jan. 9. The lovebirds are getting married—a leap toward maturity that provokes a new onslaught of angst. The premiere is a spot-on spoof of Gen X movies like *High Fidelity* and *Clerks*, and longtime *You’re the Worst* fans will be pleased to hear that one last, bonkers Sunday Funday episode awaits. —J.B.



Hynek (Gillen) faces the unknown

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TimeOff Television



Kelly still
hasn't been
dropped by his
label, RCA

The horrors of *Surviving R. Kelly*

By Judy Berman

SOMEONE FIERCELY PROTECTIVE of R. Kelly's reputation doesn't want you to see *Surviving R. Kelly*, Lifetime's docuseries about his alleged crimes against women and girls. In December, a screening was evacuated following a gun threat—according to Lifetime, an anonymous caller said someone inside the theater would begin shooting if the film continued to play. Yet the incident seemed only to embolden the survivors. (Kelly's ex-wife Drea Kelly likened it to pouring gasoline on a fire.) The six-episode series airs on three consecutive nights starting Jan. 3, and Lifetime will play all the installments again in a Jan. 6 marathon.

Reports of sexual misconduct have followed the R&B star for most of a three-decade career fueled by wholesome anthems ("I Believe I Can Fly") as well as raunchy hits like "Ignition (Remix)." A video that appeared to show him urinating on a teen girl surfaced in 2002, leading to an arrest and acquittal on child-porn charges as his albums continued to chart. Even a 2017 report that Kelly was holding women against their will in a "sex cult" failed to end his career.

Surviving R. Kelly features accusers who describe him grooming 13-year-olds, locking up girlfriends and coercing lovers into sex with underage girls. Two harrowing episodes follow parents trying to rescue daughters they allege are with Kelly to this day. It shouldn't matter how these women and their families look or sound, but the makers of *Surviving R. Kelly* seem keenly aware that it will help in the court of public opinion if the accusers meet strangers' arbitrary criteria for credibility. Every survivor is poised and intelligent.

They are almost all black women. Racial issues suffuse this tragedy, and a team led by executive producer dream hampton, a respected cultural critic, dissects them in all their complexity. Most of the experts interviewed—psychologists who interpret Kelly's behavior, music journalists, activists, musicians including John Legend—are also black.

This may be one community's story to tell. but *Surviving R. Kelly* reveals how it implicates everyone who's enjoyed Kelly's music. If we can't take back our complicity in these survivors' suffering, we can at least help their fire spread. □

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COUGHING,
ACHING,
STUFFY HEAD,
SORE THROAT,
FEVER,
**VAPORIZE
YOUR COLD,
MEDICINE.**

SELF-HELP

New takes on the new you

By Annabel Gutterman

WITH THE BEGINNING OF EACH NEW YEAR COMES THE TEMPTATION TO overhaul and improve your life, starting with a fresh new self-help book. The problem? So many of those books offer predictable solutions to concerns that, well, predictably return by February. So why not resolve to find different fixes this year? Here are six new books that explore everything from how an ancient philosopher mastered happiness to why we should all hold more grudges to a different kind of diet that's not actually a diet—but for real this time.

Aristotle's Way

EDITH HALL

When it comes to happiness, perhaps it's actually time to say out with the new and in with the old. In the 4th century B.C., the Greek philosopher Aristotle developed a framework for inner contentment around an idea that feels entirely relevant in the 21st century: that the foundation of being happy comes from doing what is right. "If you believe that the goal of human life is to maximize happiness, then you are a budding Aristotelian," writes the British classicist Edith Hall, who shares how infusing Aristotle's lessons into her own life has provided her comfort in difficult times—applying his musings on mortality to help her make grief more manageable. In her book, Hall explains some of the philosopher's most complex ideas in an approachable way, covering his notes on everything from the power of community to understanding your goals and why you should always consult a third party when making a decision. (*Jan. 15*)

Weird Parenting Wins

HILLARY FRANK

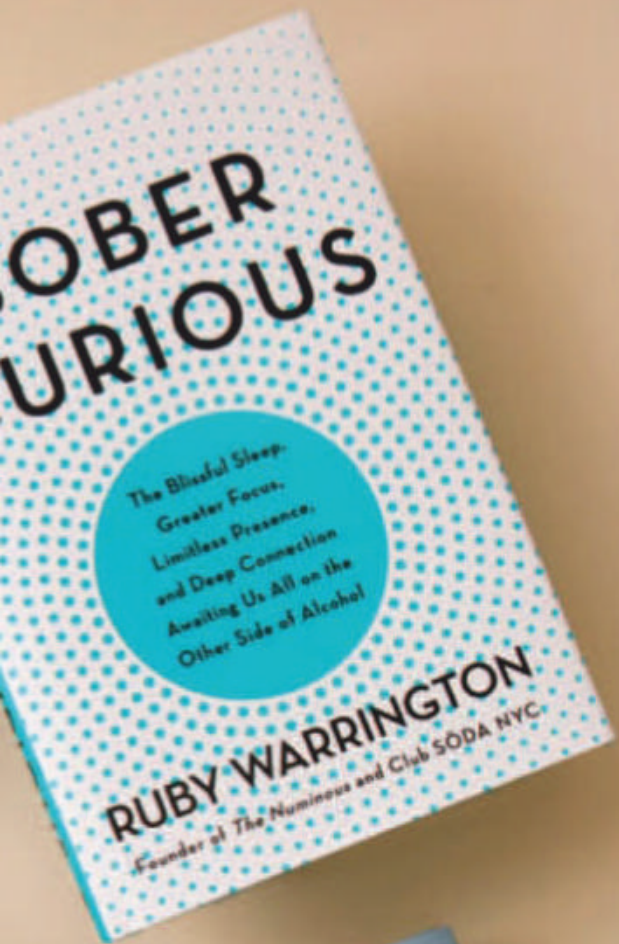
Have a baby who won't stop crying? Consider blasting some Jennifer Lopez, argues author and radio producer Hillary Frank. Many books that outline best parenting practices leave little room for creativity, offering black-and-white solutions to unique and colorful situations. That kind of one-size-fits-all guidance can make parents feel helpless. "If they work, yay, we're winning at parenting," Frank writes. "If not, we are lost." But she knows there are a million ways to get your kid to eat broccoli. So she collected moments from parents and children alike, detailing real-life drastic measures that probably shouldn't have worked but did. Want to spice up your dinner routine? Take your meal outside the dining room. Need to quell a temper tantrum? Hand your child a mood ring. Frank reconsiders everything from potty training to grappling with adolescence. All kids are different, so who knows what will work for you. But there are worse ways to start the new year than dining in the bathtub. (*Jan. 15*)

No Hard Feelings

LIZ FOSSLIE AND MOLLIE WEST DUFFY

Go ahead, cry at your desk this year, write Liz Fosslien and Mollie West Duffy. As friends and co-authors, they argue that the office would be a much more enjoyable place if we weren't so discouraged from feeling our feelings while on the clock. Fosslien and Duffy's book balances heartfelt advice with fun features like Bingo for Meetings and illustrations that poke fun at our common foibles, like overthinking emails and doing work during a vacation day. To start bringing your emotions to work, they recommend adding "microactions" to your daily routine: instead of mindlessly passing your co-worker in the hallway, give her a hello, or if you're feeling adventurous, even say her name out loud. Allow empathy into conversations with co-workers rather than sticking to rote small talk, and you may find yourself with more co-workers to commiserate with—which makes the start of a new work year a little less daunting. (*Feb. 5*)





Sober Curious

RUBY WARRINGTON

The start of a new year is a tempting time to begin a new diet, but why cut dairy or carbs when there might be another solution with even more potential benefits? Ruby Warrington suggests you cut out something else: drinking. You don't need to do so forever, she says. Instead, Warrington advises that you rethink your relationship with alcohol. Warrington coined the term *sober curious* after realizing that while she wasn't an alcoholic, she was still using booze to socialize more comfortably and suppress her feelings. In her book, she reminds us that we don't actually need "liquid courage" to approach a new person or dance like it's 2019. Confidence can come from doing a power pose or repeating a positive affirmation. If you suffer from FOMA—Warrington's acronym for "fear of missing alcohol"—she offers advice for that too, like picking up a new hobby your friends can gather around or making plans for brunch instead of dinner. If you spent New Year's Eve downing prosecco because you felt like you should, not like you wanted to, see how you feel about adopting a "sober curious" attitude in 2019. (Dec. 31)



Wabi Sabi

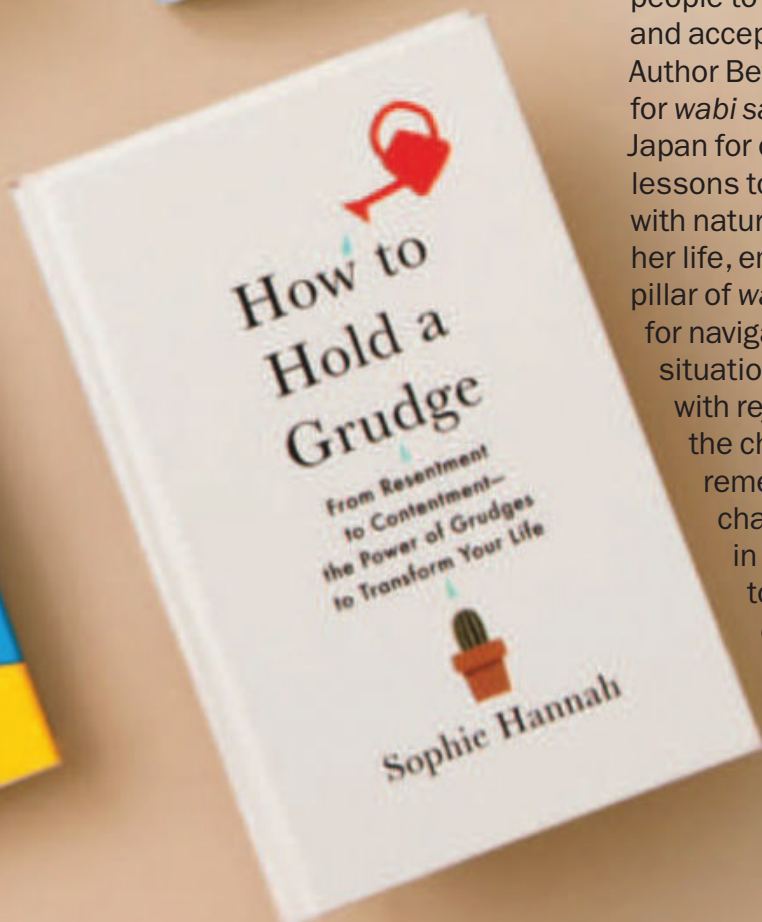
BETH KEMPTON

Hygge—the Danish trend that inspired many of us to embrace a cozier lifestyle—is one of several foreign concepts that have tickled the curiosity of Americans in need of a change. If you're looking to switch up your home, boost your happiness or even rethink how you view the world this year, consider the Japanese concept of *wabi sabi*, which encourages people to welcome life's imperfections and accept ourselves for who we are. Author Beth Kempton's enthusiasm for *wabi sabi* comes from visiting Japan for over 20 years. She's used its lessons to inform how she interacts with nature, her home and the people in her life, embracing impermanence—a pillar of *wabi sabi*. Kempton offers tips for navigating acceptance in tough situations, whether you're struggling with rejection, marriage woes or simply the chaotic state of your house, by remembering that we are constantly changing. Lean into this inevitability in 2019. Kempton suggests trying to live through a week without expectations, so you can stay calm if things don't go as planned. When we realize nothing is certain, we can skip the drama and head straight to acceptance. (Dec. 31)

How to Hold a Grudge

SOPHIE HANNAH

Too often, we're told that to start fresh in the new year, we first need to find closure. Instead, British writer Sophie Hannah argues, we should embrace some healthy stubbornness. Hannah, known for her crime novels, wants you to start keeping a grudge budget—she's called it a "grudget"—wherein you can decide which grudges are valuable to you and invest in them accordingly. "A grudge doesn't have to be vengeful, all-consuming and bitter," Hannah writes—so start thinking about grudges as a way to find power in bad memories. Throughout chapters chronicling grudges from history, pop culture and her own life, Hannah offers sage advice on how to classify and intensely analyze grudges. She wants to make you better equipped to assess the significance of the person who imposes on you, the person whose politics don't align with yours and the person who constantly underestimates your abilities, among others—so when someone tells you that you're overreacting and should move on, you can push back. It may be all the wiser not to simply forgive and forget. (Jan. 1)



6 Questions

Adam McKay The Oscar-winning filmmaker on his new dark comedy about Dick Cheney and how to laugh about our leaders responsibly

What made you want to make *Vice*, your new movie about Dick Cheney? A friend had given me a book about him. Every five pages I was like, *You've got to be kidding*. I was astounded by the depth of his influence, and the brilliance of it too. He got that call from George W. Bush [asking him to be VP]. If he doesn't get that call, American history goes very differently.

Is joking about Cheney or Donald Trump just healthy catharsis, or can it be dangerous? I think you can cover how ridiculous it is, but you have to cover the real-world side as well. That's something we sometimes lost with W. Bush and Reagan, and we're losing it with Donald Trump. He is ridiculous. There's never been a leader like him. But real things are happening. You have these leaders we make fun of, but behind them are dark consequences.

There's a montage in *Vice* that depicts the opioid epidemic, natural disasters, the refugee crisis. Are you suggesting Cheney is to blame? Oh, no. In some cases, Cheney is fairly involved, like the Syrian refugee crisis, killing action on global warming. But he's a symbol of an era where a lot of powerful messaging was put forth that government doesn't solve things. School shootings, the opioid crisis, global warming—there doesn't seem to be any even remotely serious effort to deal with these problems, which is precisely what government's for.

Did he become more human the more you tried to understand him? What intrigued me was that he wasn't a sociopathic monster in the beginning. There's this guy from Wyoming who cracked wise and played football and fell in love with the state baton-twirling champion. There is something very human about him in the beginning and how he wants to move forward in the world with a family. Yet somehow that ambition,

“YOU HAVE THESE LEADERS WE MAKE FUN OF, BUT BEHIND THEM ARE DARK CONSEQUENCES”



that American Dream, became something much darker.

You satirized the W. Bush years as a writer on *Saturday Night Live*. Was this a return to form? Part of the goal was to break this pattern of looking at each Administration as its own thing. The way we looked at it was, What is this lure of power? What does this do to a person that they turn a job for the public good into their own firepit of power? Cheney felt like a good subject, especially because he eschews the spotlight. This guy in no way wanted a movie about his life. When you see that, you know you've got real power going on.

To people who know you for *Anchorman* and *Talladega Nights*, tackling the subprime-mortgage crisis in *The Big Short* and then Dick Cheney in *Vice* might look like a leap. We're just responding to the times we live in. The late '90s and early 2000s felt like a great time for absurdist comedy, mocking things like an anchorman's sexism in the workplace. Then the world kept changing, and it got to a point where those movies wouldn't have made sense. Once we're done with this movie, there'll be that same question—what movie we'll possibly want or need right now.

You've been tweeting a lot about global warming. Is that a contender? I think that's the ultimate ball of reality rolling toward the horizon line, the thing that could snap everyone into a state of reality and take us out of this garbage we're caught up in. But what do you say in a movie about that?

You had a heart attack that you attributed to the stress of this movie. I hope you're doing better. Yeah, much better.

It leads me to wonder whether you might take on a less stressful subject for your next movie. My editor keeps joking, “Can't we just do a love story?” He might be onto something. —ELIZA BERMAN



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